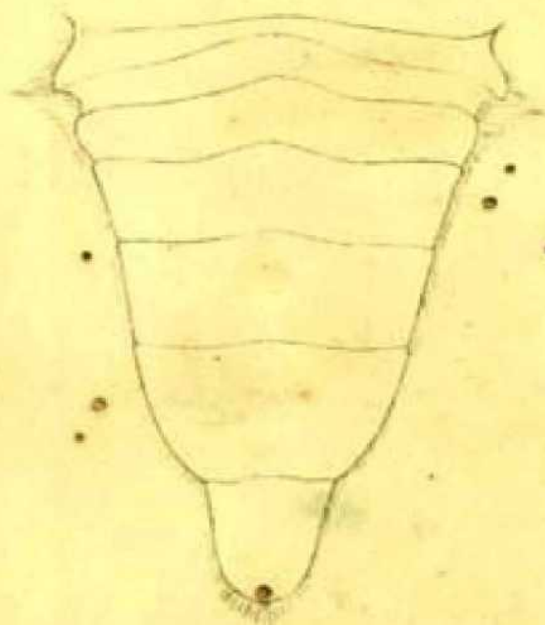


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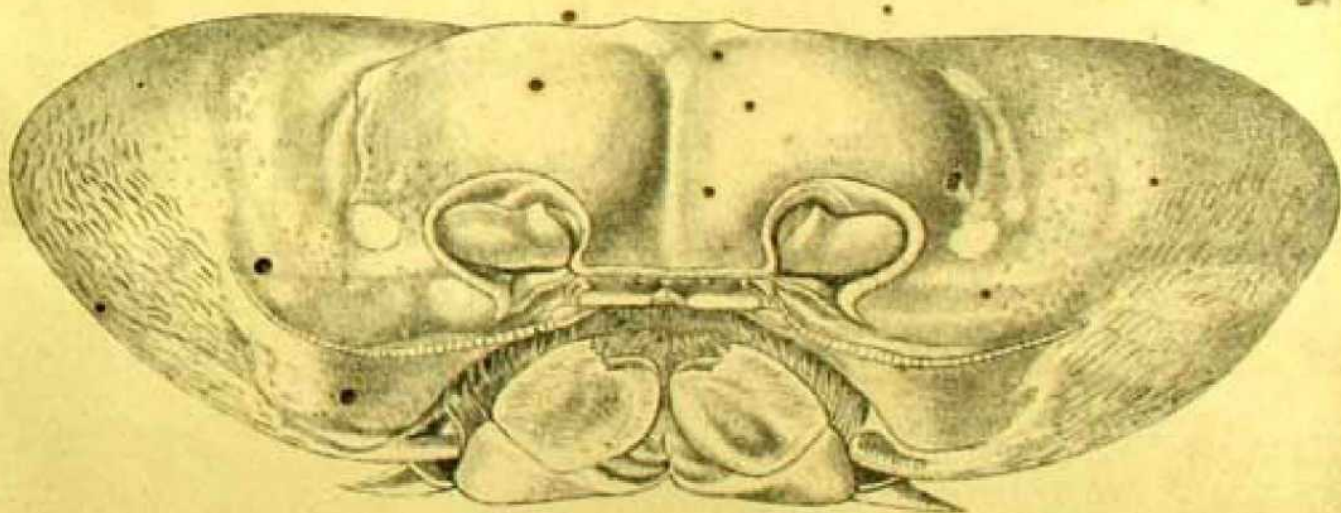
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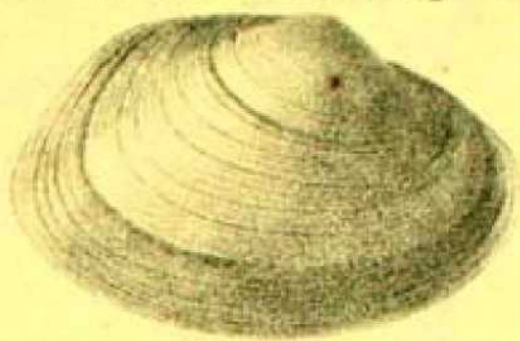
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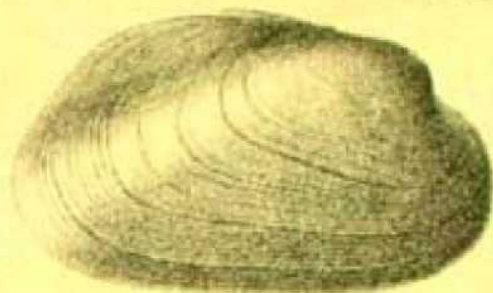
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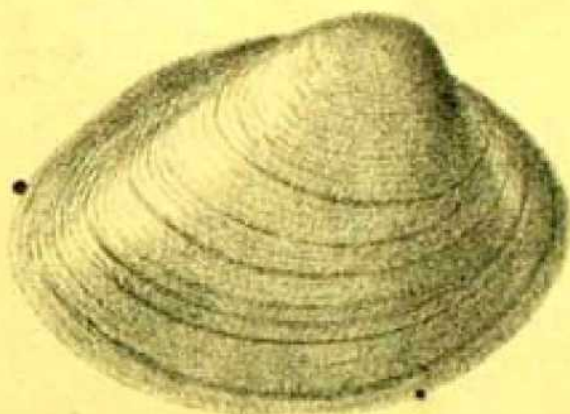




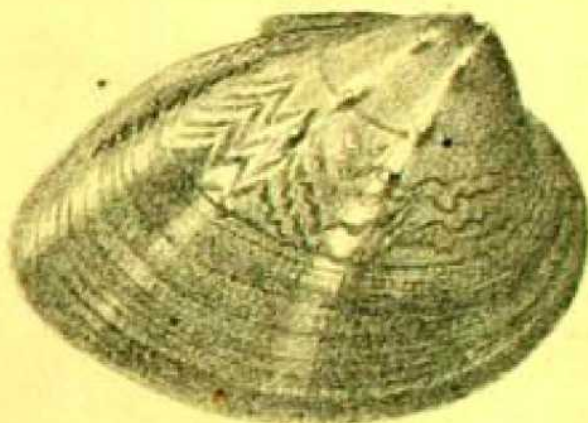
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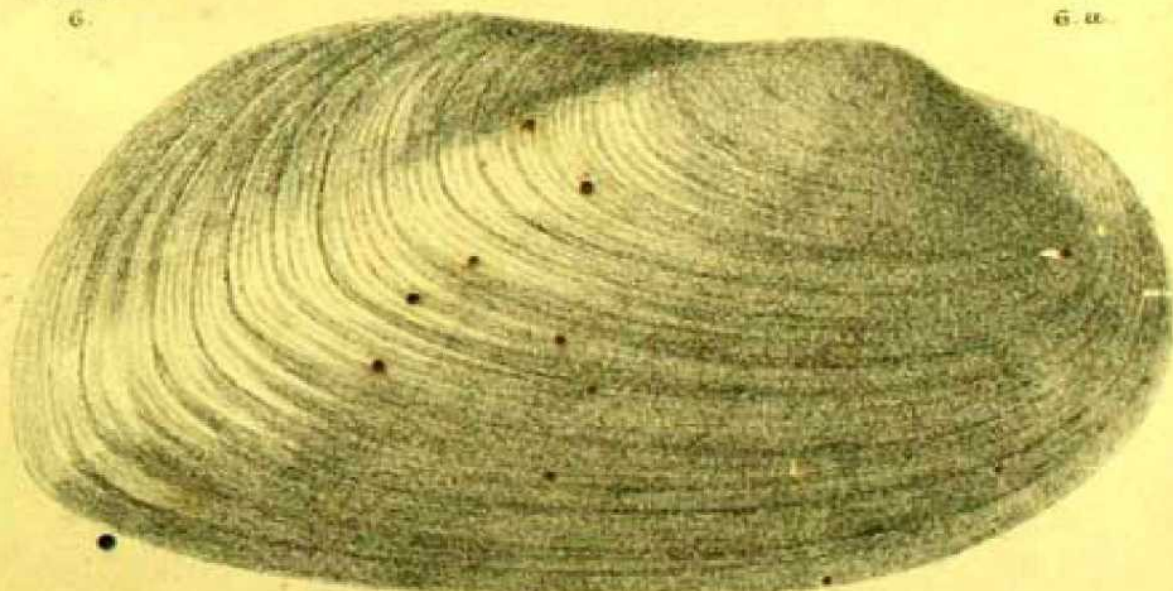
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Fig. 1. *Unio Bhamonensis*.

2. *U. Mandalayensis*.

3. *U. Feddens*.

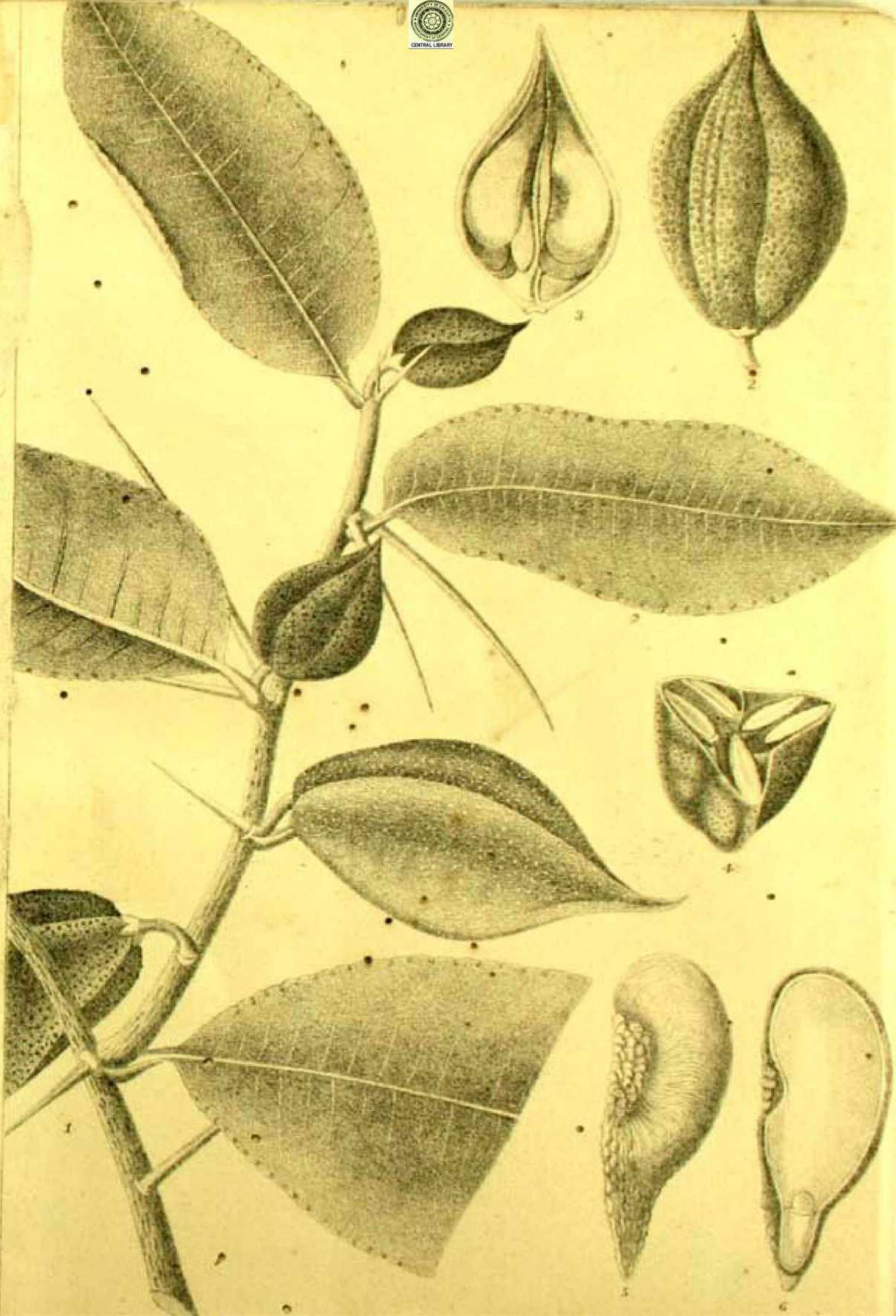
Fig. 4. *Unio Gonchaltensis*.

4. b. *U. crispicinctus*, Bens.

5. *Monochondylaea Aru*.

Fig. 6. *Sphaerium Aru*.













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## ASIATIC SOCIETY.

Part I.—HISTORY, LITERATURE, &amp;c.

No. I.—1873.

*Spirituuous Drinks in Ancient India.*—By BĀBU RA'JENDRALA'LA MITRA.

Sages and moralists have, in all ages and in every clime, expatiated in strong terms on the impropriety of indulgence in spirituous drinks, and some physiologists have recently discovered that such drinks do not possess any of the virtues which tradition has all along ascribed to them. We are told that they do not add to our strength, or power of digestion; they have no influence on the heart's action; they are powerless to increase the temperature of the body; they cannot help us to resist the chilling effect of cold; and are inert as aliments, failing alike in affording fuel for the lungs and material for the formation of the tissues. But neither the anathema of sages and moralists, nor the dicta of the professors of science, have anywhere sufficed to suppress their use. They prevail in some form or other in almost every part of the world; and those primitive races which have no knowledge of them, seize them with the greatest avidity the moment they find them; for, like tobacco, spirituous drinks have a peculiar charm which enables them, if not to defy, at least to hold their own alike against the deductions of science and the mandates of religion. In the eye of reason, voluntary inebriation may appear in the most offensive light; but there seems to be a craving in human nature to elevate the spirit above the dull routine of every-day existence, and to produce a temporary frenzy during which the cares and troubles of life are forgotten, and trains of delightful ideas fill the mind, which nothing can completely eradicate.

The history of Muhammadan civilization affords a most striking illustration of the truth of this assertion. None condemned the use of wine





more emphatically than the Prophet of Arabia, and yet there is no Muhammadan country where the consumption of wine is other than considerable, or as the great historian, Gibbon, has aptly expressed it, "the wines of Shiraz have always prevailed over the laws of Muhammad."

The annals of the Indo-Aryans yield a no less remarkable illustration. The earliest Brāhman settlers were a spirit-drinking race, and indulged largely both in Soma beer and strong spirits. To their gods the most acceptable and grateful offering was Soma beer, and wine or spirit (for in connexion with India the two words may be used synonymously, there never having been any such thing as pure wine,) was publicly sold in shops for the use of the community. In the Rīg Veda Sañhitā a hymn occurs which shows that wine was kept in leather bottles,\* and freely sold to all comers.† The said wine was, likewise, offered to the gods, and the *Sautrāmaṇi* and the *Vājapaya* rites, of which libations of strong arrack formed a prominent feature, were held in the highest esteem. Doubts have been entertained as to the nature of the Soma beverage, and people are not wanting who repudiate its intoxicating nature; but none will venture to deny that the *suśā* of the *Sautrāmaṇi* and the *Vājapaya* was other than arrack manufactured from rice-meal, and that will suffice to show that the Vedic Hindus did countenance the use of spirit. As to the Soma, if any reliance is to be placed in the directions given for its preparation, and on the Vedic descriptions of its effect on the gods, it is impossible to take it to have been other than a fermented intoxicating beverage. Of this, however, I shall treat lower down.

In the hot plains of India, over-indulgence in spirituous drinks, however gradually bore its evil consequences, and among the thoughtful a revulsion of feeling was the result. The later Vedas accordingly proposed a compromise, and, leaving the rites intact, prohibited the use of spirit for the gratification of the senses, in language very similar to Sydney Smith's "Think not, touch not, and taste not," saying "Wine is unfit to be drunk, unfit to be given, and unfit to be accepted,"† and denounced drinking to be heinous in the last degree, quite as bad as the murder of a Brāhman. The Smṛitis, following in their wake, included the sin of winebibing among the five capital crimes or *mahāpātakas*, and ordained the severest punishment against the offender.

It is said that the prohibition was first promulgated by S'ukrāchārya, the high priest of the Asuras, who was disgusted by the remembrance of certain excesses to which he himself had been led by over-indulgence in strong drink. The Mahābhārata has euphuised the story in the 76th chapter

\* "I deposit the poison in the solar orb, like a leather bottle in the house of a vendor of spirits." Wilson's Rīg Veda, II, p. 204.

† मद्यमपेयमदेयमपाद्य । श्रुतिः ।



of its first book. According to it, Kacha, son of Vrihaspati, had become a pupil of S'ukráchárya with a view to obtain from him the charm of reviving dead men, which none else knew. The Asuras came to know of this, and, dreading lest the pupil should obtain and afterwards impart the great secret to the Devas, assassinated him, and mixed his ashes with the wine of his tutor, and thus transferred him to the bowels of S'ukráchárya. It happened, however, that during his pupilage Kacha had won the affection of Devayáni, the youthful and charming daughter of S'ukráchárya, and that lady insisted upon her father to restore the youth to her, threatening to commit suicide if the request was not complied with. S'ukra, unable to decline the favour to his daughter, repeated the charm, and anon, to his surprise, found the youth speaking from his own belly. The difficulty now was to bring the youth out, for this could not be accomplished without ripping open the abdomen of the tutor. S'ukráchárya thereupon taught the youth the great charm, and then allowed himself to be ripped open, and Kacha, in grateful acknowledgement of his restoration to life, revived his tutor. Now S'ukráchárya, seeing that it was the influence of drink which had made him insensibly swallow the ashes of a Bráhmaṇ, and that Bráhmaṇ his own pupil, prohibited the use of wine by Bráhmaṇs, "From this day forward," said he, "the Bráhmaṇ, who through infatuation will drink arrack (*surá*) shall lose all his religious merit; that wretch will be guilty of the sin of killing Bráhmaṇs, and be condemned in this as well as in a future world. Let all pious Bráhmaṇs, mindful of their duty to their tutors, as also to the Devas and mankind in general, attend to this rule of conduct for Bráhmaṇs ordained by me for all the regions of the universe."

S'ukráchárya was followed by Kṛishṇa, who also cursed the wine-bibber because his kith and kin, the Yádavas, proved the most intractable and unruly of drunkards.

The legends on which these prohibitions are founded may be, for ought we know, after-thoughts, designed to illustrate the heinousness of excessive indulgence, and to give weight to the prohibitions, by invoking the authority of great men against over-indulgence. But the fact remains unquestioned that, from an early period, the Hindus have denounced in their sacred writings the use of wine as sinful; and two of their greatest lawgivers, Manu†

- \* यो ब्राह्मणोऽद्यप्रभृतीह कश्चिन्मोहात्सुखां पास्यति मन्दबुद्धिः ।  
 अपेत धूर्त्ता ब्रह्महा चेव स स्यादग्निं लोके गच्छितः स्यात्परे च ॥  
 मया चतां विप्रधर्म्मा कृषीर्मा मर्यादां वै स्थापितां सर्वलोके ।  
 सन्नो विप्राः शुश्रुवांसो गुरुणां देवा लोकाद्यपश्यन् सर्वे ॥  
 आदिपर्वणि ०६ अ० ।

† Manu XI, 91 to 96.





and Yajñavalkya\* held that the only expiation meet for a Brāhman who has polluted himself by drinking spirit, is suicide by a draught of spirit or water, or cow's urine, or milk in a boiling state, taken in a burning hot metal pot. Angira, Vasistha and Paithinasi restricted the drink to boiling spirits alone.† Devala went a step further, and prescribed a draught of melted silver, copper or lead as the most appropriate.‡ Even in cases of accidental drinking of spirits through ignorance on the part of any of the three twice-born classes, nothing short of a repetition of the initial sacramentary rites, effecting a complete regeneration, is held sufficient to purge the sin.§ The Brāhman woman who transgresses this law, is denied access to the region of her husband, and is doomed to be born a slut, or a cow, or a vulture.|| Manus likewise provides for judicial cognisance of such offence\* by Brāhmans, and ordains excommunication and branding on the forehead the figure of a bottle as the most appropriate punishment. "237. For violating the paternal bed, let the mark of a female part be impressed on the forehead with hot iron; for drinking spirits, a vintner's flag;¶ for stealing sacred gold, a dog's foot; for murdering a priest, the figure of a headless corpse.

"238. With none to eat with them, with none to sacrifice with them, with none to read with them, with none to be allied by marriage to them, abject and excluded from all social duties, let them wander over the earth.

"239. Branded with indelible marks, they shall be deserted by their paternal and maternal relations, treated by none with affection, received by none with respect: such is the ordinance of Manus." (IX.)

Even drinking of water kept in a wine bottle is held sinful, and various expiations are recommended for removing the sin.\*\*

\* सुरासुष्टुतगोमूत्रपयसामग्निमग्निभं ।

सुरापोन्यतमं पीत्वा मरणाच्छुद्धिश्छति ॥

याज्ञवल्कीये २ अ० ।

† सुरापयार्द्रवाससा चाग्निवर्णां सुरां पिबेत् ।

‡ सुरापाने ब्राह्मणो कथ्यतामघीसकानामन्यमतग्निकल्पं पीत्वा शरीरत्यागात्सूयते ।

§ अज्ञानात् सुरां पीत्वा रेतो विष्णुमेव वा ।

पुनः संस्कारमर्हन्ति त्रयो वर्णा द्विजातयः ॥

|| पतिलोकं न सा याति ब्राह्मणी या सुरां पिबेत् ।

इहैव सा शुनी गृध्री शुकरी चोपजायते ॥

¶ The words are सुरापाने सुराध्वजः ॥ "For drinking, a liquor-flag," but as there is no flag known as peculiar to arrack, or arrack-sellers, commentators take the term *surādhvaja* to mean the particular kind of jar or flagon which was formerly used to hold liquor. What the shape of this jar was, I cannot ascertain.

\*\* मद्यभाण्डस्थितं तोयं यदि कश्चित् पिबेद् द्विजः ।

पद्मोदुम्बरविल्वानां पलाशस्य कुशस्य च ॥

एतेषामुदकं पीत्वा विराचेण विशुध्यति ।



Other authorities on law and religion are in no respect less stringent. And yet it would seem that at no time in their history have the Hindus as a nation altogether abstained from the use of spirituous drinks as a means of sensual gratification. Elders, anchorites, sages and learned men, forming the bulk of the priestly race, doubtless scrupulously abstained from them, as they do now in this and other countries ; and a good number of pious and respectable householders, and men of rank and position of the other classes followed their example, even as they do now ; but as they constituted but a fraction of the sum total of the community, their abstinence could not lead to abstinence on the part of the whole nation, or the bulk of it. There was probably also a considerable amount of hypocrisy, or outward expression of horror against wine on the part of the higher orders of the people, such as we know does prevail in the present day ; but Sanskrit literature, both ancient and modern, leaves no room for doubt as to wine having been very extensively used in this country at all times, and by all classes.

Manu, notwithstanding his stern anathema, found the public feeling or practice so strong against him as to be under the necessity of observing in one place that "there is no turpitude in drinking wine," but "a virtuous abstinence from it produces a signal compensation."\* Elsewhere he provides that the soldier and the merchant should not deal in spirituous liquors, leaving the S'údras to follow the trade at their pleasure.† The prohibition in the case of the soldier and the merchant refers to arrack only, so they were at liberty to take all other kinds of liquor, and accordingly the Mitáksharā comes to the conclusion, that Bráhmans alone have to abstain from all kinds of spirituous drinks, the Kshatriya and Vaishya from arrack or *paishṭi*, leaving the S'údras to indulge in whatever they liked.‡

Coming from the age of the Vedas to that of the Sūtras, I find that not only the soma and the surá of the Sañhitás and the Bráhmanas retained their firm hold on the people, but several new candidates for public favour appeared in the forms of *Mádhvika* or *mowá*, *Gaudí* or rum, *tála* or toddy wine, and so on. They could not have been manufactured had there been no demand for them, and the conclusion becomes irresistible, that they were used to a considerable extent as a means of sensual gratification, though they seem never to have found a footing in religious ceremonies.

\* न मांसमद्येन दोषो न मद्ये न च मैथुने ।

प्रवृत्तिरेषा भूतानां निवृत्तिस्तु महाफला ॥

† X, 89.

‡ चैवर्षिकानामुत्पत्तिप्रभृति पैष्टीप्रतिषेधः । ब्राह्मणस्य तु मद्यमात्रप्रतिषेधोऽप्युत्पत्तिप्रभृत्येव । राजन्यवैश्येऽस्तु न कदाचिदपि मौद्ग्यादिमद्यनिषेधः । शूद्रस्य तु न सुराप्रतिषेधो नापि मद्यप्रतिषेधः । इति मिताक्षरा ।





Turning now to the Mahābhārata we have abundant evidence to show that most of the leading characters in that great epic were addicted to strong drinks, and no picnic or pleasure party was complete in which wine did not hold a prominent part. The extract from the *Harivaṃśa* published in the last volume of this Journal (p. 340 et seq.) affords a very graphic account of the manner in which such distinguished personages as Baladeva and Kṛishṇa and Arjuna indulged in drink in the company of their wives, sisters and daughters, and other extracts equally precise and full, might be easily multiplied, if needed. The description of Arjuna's picnic on the Raivata mountain given in the *Ādiparva*, offers a remarkable instance in point. Elsewhere Kṛishṇa and Arjuna are described as "having wine-inflamed eyes." "Both Kṛishṇa and Arjuna have been seen by me, both lying on a cot, or in their cars, besprinkled with sandal paste, and having their eyes reddened by mādhu and āsava."\* *Sudeshnā*, the queen of Maharājā Virāṭa, in the *Virāṭa Parva*, feeling thirsty, sends her maid, Draupadi, to her brother, Kichaka, to obtain from him a flagon of good wine for her use.† In the *Mausala Parva*, the Yādavas are described to have been so overcome by drink at the sea-side watering-place of Prabhāsa as to have destroyed each other in sheer drunkenness.

According to the Bhagavata Purāṇa, when questioned by his brother Yudhisthira as to how the Yādavas were doing, Arjuna is reported to have said—"O king, our friends, of whom you are inquiring, losing, through a Brāhmaṇ's curse on the house of our well-wishers, their senses by over-indulgence in Vārūni liquor, have, without recognising each other, exchanged blows and destroyed themselves. Now only four of five are left alive to tell the tale."‡

The Rāmāyaṇa also frequently notices wine and drinking. In one place no less a personage than the great sage, Viśvāmitra, who is the author of a considerable number of the hymns of the Rīg Veda, is said to have been entertained with *maireya* and *surā* by his host, Vasishṭha.§ Bharadvāja

\* उभौ मध्वासवचीवौ उभौ चन्दनचर्चितौ ।

उभौ पर्यङ्करथिनौ दृष्टौ मे केशवार्जुनौ ॥

† पर्वणि त्वं समुद्दिश्य सुरामग्नं चकारय ।

तत्रैनां प्रेषयिष्यामि सुराहारी तद्वान्निकं ॥

उत्तिष्ठ गच्छ सैरिग्निर्कोचकस्य निवेशनं ।

पानमानय कल्याणि पिपासा मां प्रवाधते ॥

‡ राजंस्तथानुश्रुतानां सुहृदो नः सुहृत्पुरे ।

विप्रशापविमूढानां निघ्नतां मुष्टिभिर्मिथः ॥

वारुणीं मदिरां पीत्वा मदोन्मथितचेतसां ।

अजानतामिवान्योन्यं चतुःपञ्चावशेषिताः ॥

श्रीमद्भागवते १ स्कन्ध १५ अध्यायः ।

§ Rāmāyaṇa, Carey's edition, I, p. 462.





another great sage, offered wine to Bharata and his soldiers when they spent a night under his hospitable roof. "O ye drinkers of spirits," said the sage, "drink spirituous liquors; O ye hungry, eat; fill yourselves with frumenty and various kinds of juicy meats.\*" This sage welcomed Ráma by slaughtering "the fatted calf," but he is not reported to have offered the exile any liquor for his regalement. Two passages, however, occur in the second book of the Rámáyana which afford the most conclusive proof of wine having been extensively used, and held in considerable estimation as a favourite drink in former days. The practice of making vows at times of danger and misfortune to offer something choice to the gods, was universal in former days, and is common enough now in most parts of the world. The nature of the offering doubtless differs under different circumstances; but the offering is made all the same. The candles for the Madonna of Roman Catholic countries is in Bengal represented by milk, or frumenty, or richer offerings, and rarely is a child sick in the house, or a cow suffering from the pains of parturition, for which some milk is not vowed to the lares and penates. Sitá, the model of feminine grace and virtue, was not above this custom, and when crossing the Ganges in her way to the wilderness of the south, is said to have made a similar vow; but instead of mentioning milk or frumenty, she pledged herself to offer a plentiful supply of arrack. Addressing the river, she said; "Be merciful to us, O goddess, and I shall, on my return home, worship thee with a thousand jars of arrack and dishes of cooked flesh-meat.†" When crossing the Yamuná she said, "Be thou auspicious, O goddess; I am crossing thee. When my husband has accomplished his vow, I shall worship thee with a thousand head of cattle and a hundred jars of arrack."‡ Again, Bharata, returning from his ineffectual mission to bring back Ráma, mourns the lost glories of the capital: "No longer the exhilarating aroma of arrack, nor the enchanting scent of garlands, of sandalwood, and of agallochum now wafts through the city."§ After these, the presence of wine in the palaces of Rávana and Sugriva, and the greatest glory of the streets of Kiskindá having been the aroma of arrack|| are not matters of wonder, seeing that those persons were

\* Rámáyana, Carey's edition, III, p. 297.

† सुराघटसहस्रेण मांसभूतौदनेन च ।

यस्यै त्वां प्रीयतां देवि पुरीं पुनरुपागता ॥

‡ स्वस्ति देवि तरामि त्वां पारयेन्मे पतिव्रतम् ।

यस्यै त्वां गोसहस्रेण सुराघटशतेन च ॥

§ वारुणीमदगन्धश्च मान्यगन्धश्च मूर्च्छितः ।

चन्दनागुरुगन्धश्च न प्रवाति समन्ततः ॥

११४ अ० २० श्लो० ।

|| चन्दनागुरुपद्माभ्यां गन्धैः सुरभिगन्धिभिः ।

मेरयाणां मधूनाञ्च समावृतमहापथाम् ॥

किष्किन्धाकाण्डे २२ सर्ग ।





not included in the pale of Hinduism and the city belonged to a race of monkeys.

Buddhism must have contributed much to check the spread of drunkenness in India, as it did in putting down the consumption of flesh-meat, but it never was equal to the task of suppressing it. The Jātakas and Avadānas abound in stories of drunkenness, and among the sculptures of Sānchi, several ladies of high rank, standing in the verandahs of the upper storeys of their mansions to behold religious processions in the street, are represented with attendants holding forth tazzas and flagons, which evidently were intended to contain something more potent than water or sharbat. In three love-scenes, the lovers are represented offering overflowing goblets to their mistresses, certainly not with a view to smother the flames of Cupid with a cooling draught. In a Buddhist drama, entitled *Nāgānanda*, lately translated into English by Mr. Ralph Boyd, a scene occurs, the plot of which depends upon the vagaries of a drunkard, who had for his lady-love a maid of honor of the queen.

In the time of Kālidāsa drinking seems to have been very common, for we find in the *Sakuntalā*, the Superintendent of Police, who was no other than the king's brother-in-law, proposing, like an English policeman, or caddy, to spend the present offered him by the fisherman who recovered the lost ring, at the nearest grog shop.

"FISHERMAN.—Here's half the money for you, my masters. It will serve to purchase the flowers you spoke of, if not to buy me your goodwill.

"JA'NUKA.—Well, now, that's just as it should be.

"SUPERINTENDENT.—My good fisherman, you are an excellent fellow, and I begin to feel quite a regard for you. Let us seal our first friendship over a glass of good liquor. Come along to the next wineshop, and we'll drink your health."\*

In his graphic description of the triumphal march of Raghu, Kālidāsa specially notices drinking-booths set up by the soldiery at Rājamundri, to drink the famous cocoa-nut liquor of the place.† The proper way to drink it was in betel leaf cups. So profusely was this liquor partaken of, that, in the hyperbolical language of the poet, the water of the Cauvery was tainted by the smell.‡ In a subsequent part of the description, the same soldiery appear to have in Persia drunk grape-wine, seated on leather

\* Williams's *Sakuntala*, p. 153.

† ताम्बूलीनां दल्लक्षत्र रचिता पानभूमयः ।

नारिकेलसर्वं योधाः शत्रवश्च पपुः शः ॥ ४ । ४९ ॥

‡ स मन्वपरिभागेन गजदानमुग्धनिना ।

कावरी सरितां पत्युः शङ्कनीयामिवाकरोत ॥ ४ । ४५ ॥



cushions spread under umbrageous vineyards.\* A passage in the *Kumāra Sambhava*, of the same author, extols a crystal palace on the Himālaya as so exquisite as to be best adapted for a drinking hall.† Drinking must have been common in high circles to justify this comparison. Elsewhere drinking halls, as specially reserved apartments in a palace, are frequently mentioned.

Kālidāsa is also lavish in his references to drinking by women of quality. In the *Raghuvaṃsa*, he makes Aja beṃoan the loss of his wife, Indumati, by this apostrophe: "How will you, dear one of wine-reddened eye, who have quaffed delightful liquor from my mouth, drink the mist-befouled water which I offer with my tears."‡ Adverting to a practice of making Vakula trees (*Mimusops elengi*) flower by gargling wine on them, the same author says: "Sprinkled over with arrack from charming faces, the blossoms partook of the character of the liquor."§ Again: "Liquors, which excite delightful recreation, overcome by their bouquet the aroma of vakula flowers, never break the current of enjoyment, and are friendly to Cupid, the ladies drink with their husbands."|| Again, "The ladies in private drank highly exhilarating liquor from the mouth of Agnivarna, and he on his turn blossomed like the vakula by drinking of arrack from their mouths."¶

In the *Kumāra Sambhava*, Rati, mourning the loss of her lord Cupid, says:—Rice liquor, which causes the reddened eyes to roll, and speech to get

\* विनयन्ते स्म तद् योधा मधुभिर्विजयन्मम ।

आसीर्णाजिनरत्नासु क्वाचावलयभूमिषु ॥ ४ । ६५ ॥

† यत्र स्फटिकहर्म्येषु नक्तमापानभूमिषु ।

ज्योतिषां प्रतिविम्बानि प्राप्नुवन्त्युपचारताम् ॥

६ सर्गे ४२ श्लोकः ।

‡ मदिराक्षि ! मदाननार्पितं मधु पीत्वा रसवत् कथं नु मे ।

अनुपास्यसि बाष्पदूषितं परलोकोपनतं जलाञ्जलिम् ॥

रघु० ८ सर्गे ६८ श्लोकः ।

§ सुवदनावदनामवसम्भृतस्तदनुवादिगणः कुसुमोद्गमः ।

मधुकरैरकरोन्मधुलोलुपैर्वकुलमाकुलमायतपङ्क्तिभिः ॥

रघु० ९ सर्गे २० श्लोकः ।

|| ललितविधमवन्धविचक्षणं सुरभिगन्धपराजितकेसरम् ।

पतिषु निर्विविश्रमंधुमङ्गनाः स्मरसखं रसखण्डनवर्जितम् ॥

रघु० ९ सर्गे २६ श्लोकः ।

¶ सातिरेकमदकारणं रज्ज्वेन दत्तमभिलेपुर्द्विनाः ।

ताभिरप्युपहतं मुखमस्य सोऽपि वदकुलतुल्यदोषदः ॥

रघु० १८ सर्गे १९ श्लोकः ।





disjointed at every step, has, in thy absence, become a torture to loving women."\*

In the 7th book of that work, when describing Siva's approach to the palace of Himaláya, the poet says that "the faces of the ladies who rushed to the windows in great haste and with half finished toilettes, to behold the procession, evolved the odour of the arrack they had drunk, and their dark eyes appeared like black bees on charming lotuses."†

Mágha, in the *Sisupálabhadha* describing Baladeva, says "when he spoke, the aroma of liquor which had obtained sweetness by lodging in the mouth of Revatí, issued from his mouth."‡

The Puránas abound in descriptions of wine and drinking, and, though the object of many of them is to condemn the use of wine, the inference is clear, that there was a widespread malady which they proposed to overcome. In some instances, moreover, the object was not reprobation, but mere description, and no less an authority than the Bhágavata Purána enjoins the use of spirit by Bráhmans at the *Sautrámani* rite. So does Vrihaspati, the high priest of the gods, whose Sañhitá is a standard authority on law.§ In the *Markandeya Purána*, the great goddess Durgá is represented as particularly addicted to strong drinks. Kuvera serves her with overflowing goblets of strong liquor, and she drinks and drinks till her eyes become flaming red, and she bursts out in wild laughter. When girding herself to prepare for her combat with the fierce demon Mahisa, she says: "Roar, roar, you fool, for a moment only, till I finish my drinking."||

Other instances may be quoted *ad libitum*, but they are not wanted. • I shall abstain also from extracting more passages from the poetical literature

\* नयनान्यरणानि घूर्णयन् वचनानि स्खलयन् पदे पदे ।

अस्मति त्वयि वारणीमदः प्रमदानामधुना विडम्बना ॥

४ सर्ग १२ श्लोकः ।

† तासां मुखैरामवगन्धैर्भयान्तरासान्द्रकुतूहलानाम् ।

विलोलनेत्रभसरैर्गवाक्षाः सहस्रपत्राभरणा इवासन् ॥

७ सर्ग ६२ श्लोकः ।

‡ ककुद्भिकन्यावक्त्रान्तर्वत्सलव्याधिवासया ।

मुखामोदं मदिरया कृतानुव्याधमुद्भमम् ॥

माघस्य २ सर्ग २० श्लोकः ।

§ सौत्रामण्यां तथा मयं श्रुतौ भक्ष्यमुदाहृतं ।

Apud Viramitradaaya.

|| ददावशून्यं सुरया पानपात्रं धनाधिपः ।

ततः क्रुद्धा जगन्माता चण्डिका पानमुत्तमम् ।

पपौ पुनः पुनश्चैव जहासारणलोचना ॥

गर्ज गर्जं चणं मूढं मधु यावत् पिबाम्यहम् ।



of the last fifteen or sixteen hundred years to show how frequently reference are made to drinking among the higher classes of the community. But I cannot omit noticing the Tantras, which afford the most indubitable proofs of a strong attachment on the part of a large section of the Hindus to over-indulgence in spirituous drinks. These works profess to be revelations made by S'iva to his consort Párvati, and constitute the life and soul of the modern system of Hinduism. In the way of religious rites, nothing is done in the present day, and nothing has been for the last fifteen hundred years in Bengal, which does not, or did not, borrow its main characteristics from the Tantras. They govern alike the conscience of the followers of S'iva, the worshippers of S'akti, and the adorers of Vishnu. In the present day, some few ceremonies are called Vedic, and Vedic mantras are used in a great many others; but in most instances, the mantras used have been transmitted through a Tántric medium, and it may be said with very little exaggeration that the life of a Hindu from birth to burning-ground is one eternal bondage to the ordinances of the Tantras. Doubtless the Tantras are of various kinds, some Vaishnavite, others S'ivite, and others designed for the glorification of S'akti, or the female energy, and the last two classes of works are described by the Vaishnavas, and very justly, as *sanmohini* or "delusive," designed with a view to mislead mankind in this sinful iron age; but even the most bigoted Vaishnava dares not question their character as revelations by S'iva, and most faithfully owns his allegiance to such Tantras as are of a Vaishnavite tendency. The S'ivite and S'akta Tantras are, however, much more numerous, and their followers in the present day may be reckoned by hundreds of thousands. Before the advent of Chaitanya, four hundred years ago, their influence was much greater; and the great bulk of the Hindus professed the faith inculcated in those works. The doctrine of equality which Chaitanya and his successors preached, won over over to their side the major portion of the lower orders of the people, and the Vaishnavas, therefore, now prevail in Bengal; but the Brahmans could never brook the idea of owning equality with low caste men, so most of them stuck to, and still follow, the doctrines of S'aiva or S'akta worship, and the Tantras which inculcate them give free liberty to their votaries to indulge in drinking spirits. The S'akta Tantras go further, and insist upon the use of wine as an element of devotion. According to them no worship of the Devi can be complete which is not celebrated with the five great essentials, "fish, flesh, wine, fried grain, and female society," technically called the five Ms, from the circumstance of the initial letters of their Sanskrit names being M. To describe the details of the worship would be so shocking that I cannot venture upon the task. Suffice it to say, that the Kaulas, who are the most ardent followers of the S'akta Tantras, celebrate their rites at midnight in a closed room, where they sit in a circle round a jar of country arrack, one or more young women of a lewd character being in the





company ; they “ drink, drink, and drink until they fall down in utter helplessness, then rising again they drink, in the hope of never having a second birth.”\* In such circles (*Bhairavi chakra*) Kaulas of all castes are admissible, for, say the Tantras, when once in the mystic circle, all castes are superior to Bráhmans, though on coming out of it, they revert to their respective ranks in civil society.† It is true that this “left-handed” or secret worship (*vámachára*) is observed by a few of the most ardent votaries of the sect, at long intervals ; and the Tantras inculcate absolute secrecy in its performance, and disclosure is condemned as calculated to frustrate all its merits, and prove highly disreputable ; but the use of wine is enjoined at the ordinary daily prayers or sandhyás, and on particular occasions it is a *sine qua non*. I knew a highly respectable widow lady, connected with one of the most distinguished families in Calcutta, who belonged to the Kaula sect, and had survived the 75th anniversary of her birthday, who never said her prayers, (and she did so regularly every morning and evening) without touching the point of her tongue with a tooth-pick dipped in a phial of arrack, and sprinkling a few drops of the liquor on the flowers which she offered to her god. I doubt very much if she had ever drunk a wine-glassful of arrack at once in all her life, and certain it is that she never had any idea of the pleasures of drinking ; but, as a faithful Kaula, she felt herself in duty bound to observe the mandates of her religion with the greatest scrupulousness. That thousands of others do so, I have every reason to believe. In some parts of Bengal, where arrack is not easily accessible, such female votaries prepare a substitute by dropping the milk of a coconut in a bell-metal pot, or milk in a copper vessel, and drink a few drops of the same. Men are, however, not so abstemious, and the Tantras ordain a daily allowance of five cupsful, the cup being so made as to contain five tolás, or two ounces,‡ *i. e.* they are permitted to take ten ounces or about a pint of arrack daily.

The most appropriate way of drinking liquor is in the mystic circle above noticed ; but as this cannot be got up every day, the devotee takes the bulk of his potation alone after the evening prayer. He is also at liberty to drink wherever he likes, and in whatever company chance may

\* पीत्वा पीत्वा पुनः पीत्वा पुनः पतन्ति भूतले ।

उत्थाय च पुनः पीत्वा पुनर्जन्म न विद्यते ॥

महानिर्वाणतन्त्रं ।

† आगता भैरवीचक्रे सर्वे वर्णाः द्विजोत्तमाः ।

निर्गता भैरवीचक्रात् सर्वे वर्णाः पृथक् पृथक् ॥

‡ पानपार्त्रं प्रकुर्वीत नपचतेऽलकाधिकं ।



throw in his way, provided he faithfully observes one condition, and that is, never to drink without neutralising the curse of S'ukráchárya and purifying the drink. This is done by drawing a triangular figure on the ground with the right index finger dipped in liquor, placing the flagon thereon, and repeating over it three mantras which say—(1) "Om! The great Brahma is one alone; verily, he is both material and immaterial. Through him I destroy the sin of Bráhmanicide which has originated in (the murder of) Kacha (son of Vrihaspati. (2) Om! O goddess, dweller in the orb of the sun, born in the abode of waters, and consisting of the sacred mantra of Amá, remove the curse of S'ukráchárya. (3) Om! If the Pragava be the source of the Vedas, and essentially and solely the felicity of Brahma, by it, the truth, O goddess, cast away the sin of killing Bráhmans.\*" After repeating the mantras, the word *vañs'a* is to be muttered several times, and then repeating his own especially *vijamantra*, the votary should meditate on the form of his favourite divinity, which is generally a manifestation of Káli, and then on that of S'iva who is described as "blood red in complexion, four-handed, three-eyed, benign, beneficent, bearing a mass of matted hair on his head, a necklace of snakes round his neck, a diminutive tomtom, a skull, a club, and a noose in his hands, and arrayed in a tiger skin."† Ten repetitions of the *gayatri* after this and of the words *hum* and *phat* effect the complete purification of the grog, and the neutralization of the curse. At the formal mystic circle, several other mantras are repeated, and some formulæ gone through; but they are not absolutely necessary for the ordinary every day ritual, or for the purification of the drink. In practice the ritual above set forth, or a modification of it, including of course the three important mantras, does not take much time, and I have seen it completed in two or three minutes. But whether an epitome is adopted, or the whole ritual be gone through, some ceremony is imperatively necessary, for the Kaula who drinks wine without purifying it, becomes a criminal of the worst class. According to the

\* ॐ एकमेव परं ब्रह्म स्थूलसूक्ष्मसूक्ष्मं ।  
 कचोद्धवां ब्रह्महत्यां तेन तै नाशयाम्यहं ॥  
 ॐ सूर्यमण्डलसम्भूते वरुणालयसम्भवे ।  
 अमाबीजमये देवि ह्यक्रशापादिमुच्यतां ॥  
 ॐ देवानां प्रणवे बीजं ब्रह्मानन्दमयं यदि ।  
 तेन सत्येन ते देवि ब्रह्महत्यां व्यपोहतु ॥  
 कैवल्यतन्त्रे २ पटलः ।

† रक्तवर्णं चतुर्बाहुं त्रिनेत्रं वरदं शिवं ।  
 जटाजूटधरं देवं वासुकीकण्डभूषितं ॥  
 डमरुश्च कपालश्च मुद्गरं पाशमुत्तमं ।  
 धारिणं तं यजेद्देवं व्याघ्रचर्माम्बरं शिवं ॥  
 कैवल्यतन्त्रे २ पटलः ।





*Utpatti Tantra*, "the Bráhmaṇ who drinks unpurified liquor is guilty of killing a Bráhmaṇ; drinking purified arrack he becomes as pure as a flaming fire. At the Sautrámaṇi rite and in the Kaula circle, a Bráhmaṇ should always drink arrack; but by drinking elsewhere for the mere gratification of his senses, he loses his Bráhmaṇhood.\*

The *Mátriká-bheda Tantra* is most eloquent in praise of drinking. It makes S'iva address his consort thus: "O sweet-speaking goddess, the salvation of Bráhmaṇs depends on drinking wine. I impart to you a truth, a great truth, O mountain-born, (when I say) that the Bráhmaṇ who attends to drinking and its accompaniments forthwith becomes a S'iva. Even as water mixes with water, and metal amalgamates with metal; even as the confined space in a pot merges into the great body of surrounding space on the destruction of the confining vessel, and air commingles with air, so does, dear one, a Bráhmaṇ melt in Brahma, the great soul. There is not the least doubt about this, O mountain-born. Similitude with the divinity, and other forms of liberation are designed for Kshatriyas and others; but true knowledge can never be acquired, goddess dear, without drinking wine; therefore should Bráhmaṇs always drink. No one becomes a Bráhmaṇ by repeating the gáyatri, the mother of the Vedas; he is called a Bráhmaṇ only when he has a knowledge of Brahma. The ambrosia of the gods is their Brahma, and on earth it is arrack; and because one attains the character of a god (*suratva*), therefore is arrack called *surá*.†" The work, nevertheless, will admit of no

\* अमस्कृतां सुरां पीत्वा ब्राह्मणे ब्रह्महा भवेत् ।  
संस्कृतान्तु सुरां पीत्वा ब्राह्मणे ज्वलंदग्निवत् ॥  
सौत्रामण्यां कुलाचारे ब्राह्मणः प्रपिवेत् सुरां ।  
अन्यत्र कामतः पीत्वा ब्राह्मण्यादेव हीयते ॥

† ब्राह्मणस्य महाभोक्षं मद्यपाने प्रियंवदे ।  
ब्राह्मणः परमेशादि यदि पानादिकं चरेत् ॥  
तत्क्षणतः शिवरूपोऽसौ सत्यं सत्यं हि शैलजे ।  
तोये तोयं यथा लीनं तेजसं तेजसे यथा ॥  
घटे भग्ने यथाकाशं द्रुपौ वायुर्यथा प्रिये ।  
तथैव मद्यपानेन ब्राह्मणे ब्रह्मणि प्रिये ॥  
लीयते नात्र सन्देहः परमात्मनि शैलजे ।  
सायुज्यादि महाभोक्षं नियुक्तं क्षत्रियादिषु ॥  
मद्यपानं विना देवि तत्त्वज्ञानं न लभ्यते ।  
अतएव हि विप्रस्तु मद्यपानं समाचरेत् ॥  
वेदमाता जपेनैव ब्राह्मणा न हि शैलजे ।  
ब्रह्मज्ञानं यदा देवि तदा ब्राह्मण उच्यते ॥ •  
देवानाममृतं ब्रह्म तदेव लौकिकी सुरा ।  
सुरत्वं भोगमात्रेण सुरा तेन प्रकीर्तिता ॥



drinking without the purification aforesaid. "The three mantras for the neutralization of the curse of the Bráhmaṇ (S'ukrácharya) should always be repeated. Then only does arrack become full of Brahma. Even as a fire flames up when clarified butter is poured on it, so does arrack become the giver of salvation on the neutralization of the curse. Therefore should Bráhmans always drink (after purifying his grog). Such a drinker, is a true Bráhmaṇ; he is proficient in the Vedas; he is truly an Agnihotri; he is thoroughly initiated; what more can I say, O noblest of goddesses, when I add that he rises above the three qualities (inherent in matter). This is the true path to salvation; but it should be kept a secret from bestial people (*pásu*, men who do not drink wine), for disclosure leads to want of success, and is highly disreputable."\*

The *Kámikhyá Tantra* speaks very much in the same vein. "Whoever," it says, "after being initiated in the salvation-giving mantra of Káliká, fails to drink wine, is a fallen man in this iron age. He has no right to the performance of Vedic and Tántric ceremonies; he is called unbráhmaṇ, ignorant as an elephant; and whatever oblations he offers his manes, becomes as impure as the urine of a dog. Having obtained the mantra of Kali or Tára, he who conducts not himself as a Vjra (or hero, *i. e.*, drinker of wine), unmistakeably acquires in his person the degradation of a S'údra."†

It will be naturally supposed that those who wrote the above pánegyric must have had various kinds of liquor for their use; and the S'ástras afford the most convincing proof on this head. Pulastya, an ancient sage and author of one of the original Smritis, enumerates twelve different kinds of

- \* हविरारोपमात्रेण वज्रिर्दीप्तो यथा भवेत् ।  
शपमोचनमात्रेण सुरा मुक्तिप्रदायिनी ॥  
अतएव हि देवेशि ब्राह्मणः पानमाचरेत् ।  
स ब्राह्मणः स देवज्ञः सोऽग्निहोत्री स दीक्षितः ॥  
वज्रं किं कथ्यते देवि स एव निर्गुणात्मकः ।  
मुक्तिमार्गमिदं देवि गेहप्रभं पशुसङ्कटे ।  
प्रकाशात् सिद्धिदानिः स्यान्नृन्दनीयो न चान्यथा ॥

- † कालिका तारिणी दीक्षां गृहीत्वा भक्षमेव न ।  
न करोति नरो यस्तु स कलौ पतितो भवेत् ॥  
वैदिके तान्त्रिके चैव जपहोमवह्निस्ततः ।  
अब्राह्मणः स एवोक्तः स एव हस्तिमूर्खकः ॥  
शुनीमूत्रसमं तस्य तर्पणं यत् पितृष्वपि ।  
कालो नारामनुप्राप्य वीराचारं करोति न ।  
शूद्रत्वं तच्छरीरेण प्राप्नुयात् स न चान्यथा ॥

कामाचातन्ते ५ पटलः ॥





liquor besides the soma beer, which is not usually reckoned under the head of *madya*, and his successors have added largely to the list. The twelve principal liquors of this sage are 1, *pānasa*, or jack liquor; 2, *drāksha*, or grape liquor; 3, *mādhuka*, or honey liquor; 4, *khārjjura*, or date liquor; 5, *tāla*, or palm liquor; 6, *aikhshava*, or cane liquor; 7, *mādhvika*, or mowa liquor; 8, *saira*, long pepper liquor; 9, *arishṭa*, or soap-berry liquor; 10, *maireya*, or rum; 11, *nārikelaja*, or cocoa-nut liquor; 12, *surā*, or arrack, otherwise called *vāruṇī* or *paishṭī*.\* This verse, as quoted in the *S'abda-kalpadruma*, gives *ṭāṇka*, or wood apple liquor, and the Vishṇu Sanhitā *koli* or jujube liquor in lieu of *Saira*.

The mode of preparing these liquors is briefly described in the *Matsya-s'ukta Tantra*. It says, "Place unripe jack, mango, and plums, in a jar, and pour on it daily a quantity of unboiled milk, and add some flesh meat; put therein hemp leaves and sweet lime on alternate days, and when duly fermented, distil, and this is jack wine."†

For the 2nd, the grape juice is to be fermented with curds, honey and ghi, distilled in the usual way, and flavoured with manjit, and chiretta.‡ This is of course brandy-bitter, pure and simple, dyed with manjit instead of burnt sugar. The 3rd has honey for its principal ingredient, and with it is to be associated Viḍaṅga (a bitter drug), salep misri, long pepper, and salt.§ The 4th has ripe dates for its basis, and with it is mixed jack fruit, ginger and the juice of the soma vine.|| The 5th is made with the

\* पानसं द्राक्षमाधूकं खार्जूरं तालमेक्षवं ।

माधूकं सैरमारीष्टं सैरेयं नारिकेलजं ॥

समानानि विजानीयात् मद्यानेकादशैव तु ।

द्वादशन्तु सुरामयं सर्वेषामधमं स्मृतं ॥

† अपक्वं पनसश्चैव आसृज्य वदरं तथा ।

स्थापयित्वा घटे नित्यं दद्यादामपयःफलम् ॥

त्रैलोक्यविजयाश्चैव मातुलङ्गं तथैव च ।

समेष्ट्वनि ततो दद्यात् सन्धानान् सत्त्वमीरितम् ॥

‡ दधिमधुघृतञ्चापि मृद्धिष्ठं तिक्तकं तथा ।

अनुपाने तु देवेशि द्राक्ष-मयं सुनिश्चितं ॥

§ विडङ्गं शालवेा मूलं

मधुना सह संस्थाप्य श्रेषे पार्कं समाचरेत् ।

पिप्पली लवणं दत्त्वा मधुना मद्यमीरितं ॥

|| पानसं पक्कखार्जूरं चार्द्रं सोमलतारसं ।

एकोलत्याग्निसन्धानान् खार्जूरं मद्यमीरितम् ॥



ripe palm fruit spiced with danti (*Croton polyandrum*) and the leaves of the *kakubha* plant.\* The 6th has sugar-cane for its basis, and black pepper, plums, curds, and salt for adjuncts.† The 7th is made of the blossoms of the *Bassia latifolia*, mixed with sugar and ripe bel fruit.‡ The 8th is made of molasses and long pepper. The Tantra follows the reading of Rājā Rādhā-kānta Deva, and has *tanka* instead of *saira*, and it should be made, according to it, with the root of the *Asparagus racemosus*, the root of the wood-apple-tree, a drug called *laksman*, lotus flowers, and honey.§ The 9th, according to the reading of the Mitāksharā, is a liquor made from soap-berry plant with molasses, but according to the Tantra of the root of the aegle marmelos, plums, and sugar.|| The 10th of the above list occurs in the Tantra under the name of *gaudi*, or rum, made from molasses, the adjuncts during fermentation being curds, hemp leaves, and a drug called *karikanā*.¶ The 11th is made of the milk, or toddy, of the cocoa-nut, mixed with plantains, ripe emblic myrobolans, and the drug *Indrajihvā*.\*\* The 12th has half-boiled rice, barley, black pepper, lemon juice, ginger, and hot water for its ingredients. The rice and barley are to be digested in hot water for two days, then boiled, then spiced with the other ingredients, and allowed to ferment thoroughly, and lastly distilled.††

\* पक्वतालं दन्तिशकं ककुभश्च तथैव च ।  
एतैरेव सुसन्धानात् तान्त्रमयं प्रकीर्तितम् ॥

† इक्षुदण्डं मरीचश्च वदरश्च तथा दधि ।  
श्रेष्ठे तु लवणं दत्वा इक्षुमयं प्रकीर्तितम् ॥

‡ नवं मधु तथा विल्वं पक्वं शर्करया सह ।  
सन्धानाज्जायते मयं माध्वीकं शरतो रसं ॥

§ शतावरी टङ्गमूलं लवणं पद्ममेव च ।  
मधुना सह सन्धानात् टङ्गमाध्वीकमोरितं ॥

|| मालूरमूलं वदरी शर्करा च तथैव च ।  
एषामेकत्र सन्धानात् मेरेर्यं मद्यमोरितं ॥

¶ दधि त्रैलोक्यविजया तथैव च ऋरीकणा ।  
गुह्येन सह सन्धानात् मोहीमयं प्रकीर्तितम् ॥

\*\* इन्द्रजिह्वा पक्वधात्री नारिकेलजलं तथा ।  
कदलीफलसन्धानात् मयं तन्नारिकेलजं ॥

†† शक्ल्लोमर्दसिद्धाग्रमुष्णोदकसमन्वितम् ।  
वक्त्रे सन्नापयेत् किञ्चित् स्थापयित्वा दिनद्वयम् ॥  
श्रेष्ठेऽहनि तु सम्प्राप्ते जीवनं तत्र निःक्षिपेत् ।  
शृङ्गवेरं मरीचश्च मातुलङ्गं तथैव च ॥  
एतेषामेव सन्धानात् पैष्टीमयं प्रकीर्तितम् ॥





The arrack described in the Vedas was somewhat differently prepared from the way above detailed, as will be seen in the sequel. All the other liquors noticed in Sanskrit works were, likewise, first fermented, and then distilled; none manufactured, as European wines are, by mere fermentation. In fact, they are all spirits differently flavoured with various kinds of spices, fruits, and herbs, to suit different tastes, and not wines; and the word wine has been used in this paper in its secondary sense of intoxicating liquor.

A liquor flavoured with aniseed has enjoyed considerable celebrity in India for a long time. It is said that a celebrated Tántric paṇḍit of Nadiá, who bore the title of Āgamavágís'a, or "the Lord of the Science of Āgama," was particularly fond of it, and used to take a *lotá* full of it every day. People, suspecting him of this weakness, watched him one evening when he was returning from his vesper prayers at the river side. He was seen to come out on the sly from a grog-shop with his water-pot filled with aniseed arrack, and taxed by a large crowd for conduct so disreputable in a Bráhmaṇ of his learning and sanctity. He denied the charge, and placed the *lotá* before his accusers, when lo! the pot appeared to contain milk. "A miracle, a miracle," cried the crowd, and the paṇḍit, instead of being degraded, was canonised as the most favourite son of the Devī; the fact being, that the wily toper knew well that aniseed liquor mixed with a little water becomes milky, and had taken the precaution to doctor it so with a view to provide against possible contingencies.

Among the many omissions in Pulastya's list, the Tánka, the Koli, and the Kádamvari appear the most prominent. The name of the first is met with largely in the Tantras. The second is of rare occurrence. The last was a favourite drink of Baladeva, and was at one time held in high repute. In medical works, various other kinds of liquor are also mentioned, mostly as aphrodisiacs, but some as medicinal. The following enjoys a high repute as an invigorating tonic. I quote a passage describing it as it is the only one in which an account is given (imperfect as it is) of the still used for distillation. "Take of fresh molasses 100 palas,\* water 30 palas, and mix them in an earthen vessel. Take of Vávāri bark (*Cassia arabica*?) and jujube bark five *prasthas* each, (a *prastha* is equal to 128 tolás,) a few betel-nuts, 32 tolás of lodhra (*Symplocos racemosa*), and two palas of ginger. Dilute the molasses mixture in water, add to it successively the ginger, the Vavari bark, and the jujube bark, mix well, then cover the vessel, and lay it by for three days. Then add the betel-nuts and powdered lodhra, recover the vessel, tie down the cover, lute it, and lay it by for twenty days. Take the apparatus called *mayúra yantra*, a strong earthen vessel of the shape of a peacock, place it on a hearth over a slow fire, pour into it the fermented mixture, and add thereto half a pala each of powdered betel-nut, sailabolaka,

\* A pala, according to some, is equal to 4 tolás; according to others, eight tolás.



deodar wood, cloves, padmaka (a drug), leaves of the *Andropogon muricatum* (a fragrant grass), sandal wood, *Anithum sowa*, *Ligusticum ajwana*, black pepper, the white and the black cummin seed, carraway, jatāmansi, nutmegs, *Cyprus rotundus* (*muthá*), grinthi parni (a drug), dried ginger, methi (a spice), and small cardamums. Now cover the vessel with two upturned chatties, attach thereto two pipes, and carefully distil the liquor. This wine should be drunk daily. It promotes the secretion of the constituents of the body, and is invigorating.”\*

Although all the various Indian liquors are essentially the same, *viz.*, rum, differing only in being differently flavoured, in the eye of the Hindu law, the liquors made from molasses, mowa, and rice are held to be more offensive than the others, and the punishment for drinking them, more severe.

\*The flavouring ingredients used in the preparation of these liquors, it is said, materially altered their virtues, and medical works prescribe different liquors for different complaints. For ordinary use the rum from molasses is described to be the most healthful in the dewy season (October and November), the arrack from paddy in the cold and rainy seasons; and the mowa liquor in spring, summer, and autumn. Connoisseurs were also formerly particular as to the age of their liquor, and the older the liquor, the better was it appreciated.

Nor were they, it would seem, content with their home manufactures, for it appears from Arrian's Periplus of the Erythrian Sea that large quantities of foreign wine were regularly imported two thousand years ago, and these met a ready sale in the country. The varieties mentioned are 1, *Λαοδικηνος*, or wine of Laodicea in Syria; 2, *Ιταλικος* or Italian wine, and 3, *Αραβικος* or Arabian wine.† These, from the circumstance of their having been brought

\* नूतनं गुडसङ्गाद्यं शतमेकं पलं तथा ।  
जलं त्रिंशत्पलं देयं स्थापयेन्मृदुभाजने ॥  
वावरीलचसङ्गाद्यं वदरीलचमेव च ।  
प्रस्थं प्रस्थं प्रदातव्यं पूगं देयं यथोचितं ॥  
लोभश्च कुडवं दत्वा चार्द्रकञ्च पलद्वयं ।  
गुडं सङ्गेलकं दत्वा दापयेद्दुडिमान् भिषक् ॥  
प्रथमे चार्द्रकं देयं द्वितीये वावरीलचं ।  
तृतीये वदरीं दत्वा गेलुयित्वा भिषग्वरः ॥  
मुखे शरावकं दत्वा स्थापयेद्दिवसत्रयं ।  
पूगश्च लोभचूर्णश्च दापयेत्तदनन्तरं ॥  
मुखे शरावकं दत्वा यत्नं कृत्वा च बन्धने ।  
मुखसम्बन्धनं कृत्वा स्थापयेद्दिनत्रिंशतिः ॥  
सृण्वये मेरुचिकापात्रे मयूराख्येऽपि यन्त्रके ।

† Vincent's Periplus II, Appendix, p. 67.



from distant countries, must have been much more costly than the spirituous liquors of India, and consequently none but the wealthy could afford to drink them.

The different liquors were always taken neat, and it was necessary, therefore, to take some saline, sub-acid, or sweet stuff, to remove the pungency or smarting caused in the mouth by the raw spirit. For this purpose fruits, roasted mince meat, and cakes were most approved by the higher classes, but the lower orders had to content themselves with parched or fried grains and pulses seasoned with salt and chilly. These wine biscuits were held in great requisition, and were known by various technical or slang names, such as *Upadars'a*, *Upadañsa*, *Avadañsa*, *Chakshana*, *Madyopāsana*, *Mudrá*, &c. I have noticed the word *nakula* also so used in the Bengali Chandi and some of the Tantras, but I am not able to put my hand on the text of the latter just now. The word probably came from *nakuli* flesh-meat; but I learn from my friend Mr. Blochmann, that in Arabic the word is used in the same sense, and it is possible that some of the modern Tantras borrowed it from the Muhammadans. Anyhow the word has become generally current, and one of the names of S'iva is *Nakules'a* or "lord of wine biscuits," and no drinking party was formerly complete without a good supply of these tit-bits.

Looking to the nature of the climate, the character and temper of the people, and the anathemas which the S'āstras have, from time to time, hurled against the drunkard, it might be taken for granted that men of the higher castes, and good people generally, did set their faces against drinking, or, at least, did preserve an outward appearance of horror against those who openly outraged the mandates of the Smṛiti; but it would seem that for all that cases of delirium tremens turned up pretty frequently, and several very

यथाविधि प्रकारेण मन्दमन्देन वञ्जिता ॥  
 चुञ्जीमध्ये निधातव्यं मृत्तिकादृढभाजने ।  
 तदौषधश्च तन्मध्ये उद्धरित्वा विनिक्षिपेत् ॥  
 नालश्च युगलं दत्त्वा कुम्भा च गुजकुम्भवत् ।  
 कुम्भमध्ये निधातव्यं पूगश्च शैलवालुकं ॥  
 दवदारु लवङ्गश्च पद्मकोष्ठीरचन्दनं ।  
 शतपुष्पायमानी च मरिचं जोरकद्वयं ॥  
 शठौ मांसीत्वगेला च जातीफलममुलकं ।  
 ग्रन्थिपर्णी तथा शुण्ठी मेथी मेथी च चन्दनं ॥  
 एषां चार्द्धपलान् भागान् कुट्टयित्वा विनिक्षिपेत् ।  
 यथाविधिप्रकारेण चालनं दापयेत् सुधीः ॥  
 बुद्धिमान् मौजनं ज्ञात्वा उद्धरेत् विधिवत् सुरां ।  
 एतत्पदं पिवन्नित्यं यथा धातुबलक्रमात् ॥  
 इति शुक्राचार्यविनिर्मिता मृतमञ्जीवनी सुरा ॥ ० ॥



expressive names were current in the country at one time to indicate the disease. One of them means "wine horror" *madátanka*, another "wine disease" *madátyaya*, a third "wine complaint" *madavyádhi*, &c. The descriptions of the disease, as given in Sanskrit medical works, are detailed and precise, discriminating carefully between the illness caused by excess, and that by sudden abstinence after a protracted over-indulgence. These names and descriptions could not have come to existence, had there not been immoderate drinking in many instances to give rise to the complaint.

There is another indication in medical works which is worthy of note ; it is the multiplicity of receipts for removing the odour of wine from the mouth. None but the rich or well-to-do could have required such prescriptions to guard against the accusation of having taken wine, and the existence of the recipes implies the existence of a class of men who were addicted to drinking, and yet wished to pass among their neighbours for teetotallers.

Of fermented beverages, which were drunk without previous distillation, four kinds are mentioned, *viz.* cocoa toddy, palm toddy, date toddy, and the soma nectar. The first was known only to those who inhabited the sea coasts, where alone the tree which yielded it, is met with. The acetous fermentation in its case was so rapid, that transmission of the liquor from one part of the country to another was out of the question, and none but those who lived in the neighbourhood of the tree could drink the juice in a vinous state. The date and the palm toddies suffered in the same way, and were unfit for transmission to distant places ; but the trees which yielded them were common almost all over India, and so they were more easily accessible, and more widely known. But they never seem to have attained any great popularity. The soma nectar was likewise open to this objection ; for it, too, had no keeping quality, and, for aught we know, was never manufactured for sale ; but it was associated with the earliest history of the Aryans, even before they separated from the ancient Persians, and enjoyed the proud pre-eminence of a god as long as Vedic rites governed the conscience of the people. The Rig Veda Sañhitá is most lavish in its praise, and all the four Vedas furnish innumerable mantras for repetition at every stage of its manufacture, and from the moment a resolution was made to commence one of the rites at which it was to be used (and all the principal rites such as the Dars'a, Paurṇamāsa, Jyotishtóma, Ukthya, Shodas'imán, Vájapeya, Atirátra, Áptaryáma, &c., could not be celebrated without it), nothing could be done without appropriate mantras, and the ritual throughout was most complicated and tedious. It would be foreign to the object of this paper to describe in any detail the several steps in the manufacture of the beverage ; suffice it to say that it was made with the expressed juice of a creeper (*Asclepias acida*, or *Sarcostema viminalis*), diluted with water, mixed with barley meal, clarified butter, and the meal of wild paddy (*nivára*), and fermented in a

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jar for nine days.\* The juice of the creeper is said to be of an acid taste, but I have not heard that it has any narcotic property; I am disposed to think, therefore, that the starch of the two kinds of meal supplied the material for the vinous fermentation, or, in other words, played the part of malt, and the soma juice served to promote vinous fermentation, flavour the beverage, and check acetous decomposition, in the same way that hop does in beer. Anyhow, it may be concluded that a beverage prepared by the vinous fermentation of barley meal, should have strong intoxicating effects, and it is not remarkable, therefore, that the Vedas should frequently refer to the exhilaration produced by its use in men and gods. The addresses to Indra, Agni, Mitra, and other gods in the Rig Veda are full of allusions to exhilaration caused by the use of the soma. "The sacred prayer, desiring your presence, offers to you both, INDRA and AGNI, for your exhilaration, the Soma libation. Beholders of all things, seated at this sacrifice upon the sacred grass, be exhilarated by drinking of the effused libation." (I. 7. xxvii. 4, 5.) Other quotations on this subject may be easily multiplied, but they are not needed. Suffice it to say that the object of drinking the soma is expressly stated to be intoxication: *madáya arvenēhi somakámam tváhe rayam sutastasya puá madáya*; and Indra drinks it in such large quantities, that his belly becomes enormously distended. *Urúya chájaṭhara ávrishasva*. As regards men, its effects are described as equally exhilarating and inebriating. A story occurs in the Black Yajur Veda in which a sage, Vis'varupa by name, son of Tvashtu, while engaged at a soma sacrifice, is said to have indulged so inordinately in the exhilarating beverage as to have vomited on the animals brought before him for immolation. For this, however, no proof is wanted, for the effect of soma on the gods could have been only assumed by a knowledge of what it was on the worshippers.

The soma beer lasted for several days after its nine days' fermentation. In some of the rites it certainly lasted for twelve days, but how much longer I cannot ascertain. It is certain, however, that it could not be kept sound for any great length of time, without distillation, and in a distilled spirit the soma would be of no use. Accordingly, we find that no soma juice was used when arrack was distilled from fermented meal. The liquor, thus prepared, was, as already stated above, called surá, and it was used as an article of offering to the gods in two important rites, namely, the *Sautrámaṇi* and the *Vajapeya*. The mode of preparing it is described in the canons of Baudháya and Kátyáyana. They recommend three articles, viz., sprouting paddy, the sprout brought on by steeping paddy in water very much in the same

\* Stevenson's Sáma Veda, p. 5. and Haug's Aitareya Bráhmaṇa, I. p. 6. Manning's Ancient India, I., p. 86. For the mantras used in the course of preparing the soma beverage vide, Taittiriya Saṁhitá, Káṇḍa I. Prapáthakas II. III. IV., and Káṇḍa VI. Pt. I. to IV. The Kalpa Sūtras and the Soma prayogas supply the details.

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way as malt is produced, slightly parched barley steeped in curds and diluted butter milk, and coarse powder of the same steeped in whey. After proper fermentation, this was distilled in the usual way, and the liquor produced was poured in oblations on the sacred fire in lieu of the soma beer. The *Taittiriya Bráhmaṇa* supplies a number of mantras for the preparation of the liquor, but I can nowhere find any description of the still in which the distillation was effected. Kátyáyana recommends that the different articles required for the manufacture of the liquor should be obtained by barter, and not by purchase with coins. In the Sautrámani rite, the offering of the liquor should be preceded by the immolation of three animals, a bull being one of them. The worshippers were required to partake of the remnant of the offerings, as the ceremony would be incomplete without the repast.

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*On the History of Pegu.*—By Major-General SIR ARTHUR P. PHAYRE,  
K. C. S. I., C. B.

The chief authority which has been followed in this sketch of the history of Pegu, is a narrative written in the Taláing, or Mun, language by Tsha-yá-dán A-thwá, a Buddhist monk. It was derived from ancient records and traditions, and was translated into Burmese by Máung Shwé Kyá, a learned Taláing. The chronology of the narrative is very confused, though the most important date, that of the foundation of the city of Pegu, is correctly stated. Neither the author nor the translator, however, has attempted to correct the manifest errors which exist. In this paper, the dates of the more prominent events in early times have been rectified by me from contemporary Burmese history; and in later times, from the accounts of European travellers. The few particulars which can be gathered regarding the history of Tha-htun, the most ancient city on the coast of Pegu, have been placed at my disposal by Mr. St. Andrew St. John, Assistant-Commissioner in British Burma. They were derived from MSS. in his possession. I have also had the advantage of consulting an essay in the Burmese language, on the same subject written by Máung Byan, a Taláing gentleman of ancient family. This was procured for me by Colonel D. Brown, Commissioner in Tenasserim. I have read what has been written on the ancient history of Pegu by the Reverend Dr. Mason, in his excellent work on Burma; and have consulted the Gazetteer of Pegu, edited by Major M. Lloyd, Deputy Commissioner. The notices of events in Burma and Pegu by the old Portuguese voyagers, as narrated in the lucid general summary by Mr. Talboys Wheeler, and the valuable edition of the travels of Nicolo Conti in the early





part of the fifteenth century, by Mr. R. H. Major, together with other travels by Europeans, in that and the following century, have been used to correct, or to confirm, the statements in the native annals.

The country now called Pegu, or as written by the natives Bagó and Pégu, consisted in ancient times of the delta of the E-rá-wa-ti, and the land in the lower courses of the rivers Sit-táung and Thán-lwin (Salwin). At different times the coast as far south as the Tenasserim River has been subject to the monarchy; while to the north the limits of the kingdom varied according to the power of the kings to defend their territory from the Burmese. The northern boundary on the Eráwati River, may as a general rule be fixed at A-káuk Táung, about thirty miles below the town of Prome. In remote times, and long before the foundation of the city of Pegu, from which the name of the whole country was afterwards derived, the sea coast from the mouth of the Pa-thin (Bassein) River, near Cape Negrais, to the mouth of the Thán-lwin, (Salwin) was known as Rá-ma-nya, or the country of Ráma. This shows an Indian influence.\* The classic name for the town of Maulamyaing (Moulmein) is still Rámapura, though this may have been transferred to it from a city once existing near the present Rangun. The country of Pegu was afterwards called Hán-thá-wa-ti, which is still the classic name, and the origin and meaning of which will presently appear. The etymology of the word Maulamyaing, which is the Burmese form of the Taláing name Mut-mwa-lem, signifies "one-eye-destroyed;" the tradition being that it was founded by a king having a third eye in the centre of his forehead, which was destroyed by the machination of a woman. This story, as Dr. Mason observes, suggests the legend of Siva. And though this appears at first sight to clash with the classic name Rámapura, yet from the history of Pegu, it is evident that during successive periods, the country participated in the religious revolutions of the Buddhists and various Hindu sects, through which the neighbouring coast of India passed.

The earliest notice of Rámanya which can be accepted as historical is derived from a Buddhist source, the Mahávanso of Ceylon. Therein is recorded the deputation of the great missionaries, Sono and Uttaro, (Thauna and Uttara), by the third Buddhist synod, held at Pataliput, B. C. 241. They were sent to the country called Suvarna bhumi, (Thumannna bhumi), or "golden land," to preach the great reform determined on by the synod. The name given to the country was the Pali designation of the portion of Rámanya of which Tha-htun was the capital. The ruins of Tha-htun still exist on a small stream about ten miles from the seashore, and forty-four miles travelling distance N. N. W. from Martaban (Muttama). The city appears to have been laid out on the general plan of ancient Indian cities,

\* The island of Ramri, or more properly Ram-byi (country of Ráma), shows the same influence.





and which has been followed in the modern capital of Burma. The ground plan of the outer rampart is a square or oblong, within which is an open space of about a hundred and fifty feet, and then a second but lower wall or rampart, and moat. The east and west inner walls are each 7700 feet long; while those on the north and south are about 4000 feet each, enclosing a space of about seven hundred acres. The angles, however, are not exact right angles. In the centre of the city is the fortified royal citadel, measuring from north to south 1080 feet, and from east to west 1150 feet. This was for the defence of the palace, the "throne room" being, as is now the case at the Burmese capital, nearly the central point of the city. There are two gates, or spaces for entrance, in the northern and southern faces of the rampart, but it is impossible to say how many on the eastern and western. Such is the description given by Mr. St. John of the present appearance of Tha-htun. The position of the city with reference to the approach from sea, is now not suitable for a port. But there is strong probability that a gradual rise of the land, including all the adjoining gulf of Martaban, has been going on for several centuries, which has destroyed the port. With this change of level it is probable that the influx of tide, called "the bore," is now more violent near the mouth of the river Thit-taung (Sittang), than it was two thousand years ago.

The traditions as well as the scanty historical notices which remain regarding Tha-htun, show that it was founded by Indian colonists. One tradition is, that the original colonists came from Thu-binga in the country of Ka-ra-náka, or Karanatta. By some this is made to refer to the founding of Maulamyaing. It may, however, be accepted as certain that people from what is now called the Coromandel Coast, established at an early period, possibly a thousand years before the Christian era, one or more trading stations on the coast of Pegu. That Tha-htun had risen to some importance as a city in the third century before Christ, is shown from its having had allotted to it missionaries at a synod held under the influence of the Buddhist Constantine Asoka. The name Suvarnabhumi, or "golden land," by which the country was then known in India, probably refers to gold being exported in great quantity from the emporium. Gold, no doubt, was brought from Yunan down the Eráwati River at a very early period. It continued to be an article of commerce from the same country until within the last sixteen or eighteen years, since which the trade has been interrupted.\* There is also an old gold "diggings" about a hundred and twenty miles distant from Tha-htun on the Paung-laung or Sit-taung River. The town is still

\* In a note on the metals of Burma by Dr. T. Oldham, published in Yule's *Mission to Ava*, it is stated on good authority, that the annual amount of gold brought from China (Yunan) overland to Ava for some years before 1855 was 1100 lbs. weight. In one year, 1800 lbs. weight was imported.



called in Burmese *Shwégyin*, or "gold sifting place." Gold is indeed still found there, but not in sufficient quantity to be remunerative, except to very poor people. These facts appear to explain satisfactorily the classic name of the country. The name *Tha-htun* is derived from vernacular words having the same signification.

One of the early Buddhist legends referred to by the native historians is to be found recorded in books still existing in the monasteries of Ceylon.\* Two merchants from *Thuwanna bhumi*, named *Tapassu* and *Bhallaka*, had gone on a trading expedition to Northern India. On returning with their waggons of merchandize to reach the sea coast, they passed through *Magadha*, where *Budha* was absorbed in meditation and in the seventh weeko f his fasting, in the *Kiripalu* forest. The merchants made an offering of honey to *Budha*, who, at their request, bestowed on them eight hairs of his head as relics. These they brought to their own country, which are now believed to be enshrined in the *Shwé Dagun* pagoda at *Rangun*. This legend may be accepted as showing that at an early period, the Indian merchants of *Suvarnabhumi* traded to Upper India, and were considered a community of sufficient importance to have attributed to two of their body the honour of a personal interview with *Budha*. At a later period, the commercial importance of *Suvarnabhumi* is shown from the emporium *Subara* appearing in *Ptolemy's* list of places on this coast, as has been pointed out by *Colonel Yule*.

Concerning the first building of *Tha-htun*, it is related that before *Gau-tama* appeared, there reigned a certain king *Ti-tha*, in the city of *Thu-bin-na* (or *Thu-bin-ga*), in the country of *Karanaka*. He had two sons *Ti-tha Kummá* and *Dzá-ya Kummá*. The young princes determined to abandon the world and become hermits. They, therefore, left their home, and went to dwell on separate mountains, near the seaside, described as being not far from the future site of the city of *Tha-htun*. The whole country was then forest. Once when walking on the seashore, the brother hermits found two eggs, which had been deposited and abandoned by a female dragon, who came up out of the sea. The hermits carried away the eggs, from which in due time issued forth two male children. The hermits brought up the boys, one of whom died at ten years of age; but being born again in *Mit-ti-la*, about the time of the appearance of the lord *Gau-ta-ma*, became, while yet a child, one of his disciples. The boy, produced from the egg taken by the elder hermit, lived in the forest until he was seventeen years of age, when by the help of *Tha-kya*,† he built the city of *Thuwanna-bhumi*, called also *Tha-htun*, and reigned with the title of *Thiha Rá-dzá*. By the intercession of him who, in a former birth, had been his younger brother, but had now risen

\* See *Spence Hardy's Manual of Buddhism*, page 182. •

† *Sakra*, the chief of the second *dewaloka*, or heavenly region, answering to *Indra* in Hindu mythology.





to a Rahánda, the lord Gautama himself came through the air and visited Tha-htun. This was thirty-seven years before he entered Nirvána. The country is spoken of reproachfully as a land where fishermen and hunters abound, these being callings opposed to the tenets of Buddhism. But the king and the people of the city listen to the preaching of Budha, and the future greatness of the country is predicted. But though the people immediately around the city were well disposed, those at a distance were savage and resentful. It is related how the great teacher, attempting to land near the mouth of the Than-lwin river, was stoned by the Bhi-lús and evil Náts who dwelt there. In these words is shadowed forth the rejection of Buddhist doctrine by the native inhabitants, who afterwards became distinguished for their religious zeal.

From this time the historians of Tha-htun profess to have a list of all the kings who reigned in Thuwanna bhumi, distinct from the kings of Pegu. It is now impossible to decide how much of this list is historical and how much fictitious, until near the time of the destruction of the monarchy in the eleventh century of the Christian era. Tha-htun was then taken and destroyed by Anaurahtá, king of Pu-gán; and the king Manú-ha, with his whole family, the nobles, monks, artificers, mechanics, and skilled workmen of every description, were carried away captive. There are the names of fifty-nine kings in the list, who are said to have reigned for sixteen hundred and eighty-three years. The events of their reigns are discreetly veiled under the obscure phraseology of metrical lines. By the chronology it seems to be intended that the reign of the son of the first king Thi-ha Rádzá, commenced in the year that Gautama attained Nirvána. Taking this as a starting point and accepting the Burmese era of religion as commencing 543 B. C., then, as Thi-ha Rádzá is said to have reigned sixty years, we find the year 603 B. C. as the commencement of the monarchy. This would give the year 1080 A.D. as the year of its destruction by Anaurahtá. The time thus deduced for the latter event does not differ very much, considering all things, from the Burmese account. Anaurahtá, according to the Mahá Rádzáweng, ascended the throne of Pugán in the year 1017, A. D., and reigned forty-two years. Within that period therefore he captured Tha-htun. The list of the kings as given in the native chronicles is added. But it is not considered to have any historical value, except as a generally correct representation of the existence of the monarchy, and its destruction with the city, about the period stated, by the Burmese king.

Among the few facts recorded in the native annals of Tha-htun which need be mentioned here, is the arrival of the great missionaries Thauna and Uttara, which is put down as having occurred in the year 223 of religion, being 320 B. C., instead of the true date 241 B. C. On their arrival, they and their disciples were denounced by the existing teachers as bhi-lús



or monsters, the name here bestowed upon heretics and scoffers. They were violently opposed and beaten with sticks. But the mild demeanour of the Rahándas gradually made their authority prevail. The people were won over to believe them, and new-born children were named after them. The pagodas which had long been neglected and round which jungle had grown up, were repaired. Pleasant gardens were now planted for the resort of the religious, and the reformed doctrines were triumphant.

The only other event of importance which is mentioned in the history of Tha-htun is the introduction of the Pi-ta-kát, or books of the Buddhist scriptures, by Budhaghosa. This event, so important to all the Indo-Chinese nations, is noticed by the Right Reverend Bishop Bigandet in his valuable "Life or Legend of Gautama," and the date therein ascribed to it, from Taláing or Burmese authority, is A. D. 400. Up to a recent period, the histories written by Taláings or Burmans represented Budhaghosa as a great Rahán of Tha-htun, who went to Ceylon, and brought from thence the sacred books to his native land. This statement has, however, been corrected in the latest edition of the Burmese national history (Mahá Rádzáweng), which was written, or revised, in the palace at Amarapura about forty years ago. The story of Budhaghosa is therein correctly told, and has apparently been derived from the Mahávanso of Ceylon. The date assigned for Budhaghosa's voyage to Tha-htun is A. D. 403.\* Even the Taláing writers, long jealous for the honour of their country, seem now to acknowledge their error as to the birthplace of their great teacher. In a late paper by a learned Taláing which I have perused, it is acknowledged that there are two accounts regarding Budhaghosa; and it is only argued that in returning from Ceylon to the continent of India, he may have come by ship to Tha-htun, and revived by his presence the drooping flower, religion. That Tha-htun was his native place, seems to be silently abandoned.

All that can be gathered of the early history of Tha-htun has now been noticed. The only explanation which can be offered for the entire absence of trustworthy ancient documents, and the want of details with any historic value, is the ruthless destruction of everything by Anaurahtá, king of Burma, in the eleventh century of the Christian era.† All that was moveable and worth removing, was then carried away to Pugán, and though Tha-htun still remained as a port, to which perhaps a few foreign ships resorted, the bulk of the trade passed to the city of Pegu; or was two or three centuries later established at Mut-ta-ma (Martaban).

\* In Max Müller's introduction to Captain Rogers' parables of Buddhaghosa, the period between A. D. 410 and 432 is stated as being that of the literary activity of the great teacher in Ceylon.

† See Journal of the Asiatic Society of Bengal, for 1868, on 'History of the Burma race.'



It is now time to turn to the history of Pegu. This country became known to Europeans in the fifteenth century when it was a powerful kingdom. Afterwards it long existed as a mere "geographical expression," but under other influences is once more rising to commercial greatness.

Concerning the foundation of the city of Pegu the legends relate that at the time when the lord Gautama came through the air, attended by thousands of Rahándas to visit the king of Tha-htun, the sea flowed over the whole of the low country, now occupied by Rangun and Pegu. After preaching to the king and people of Tha-htun, Budha returned through the air to go to the middle land. When passing over the sea, a small sandbank appeared, which rose above the surface of the water, shining like a silver islet; and there the lord beheld a pair of golden *hásas*.<sup>\*</sup> He then predicted that hereafter a great city and country would arise in that spot; for wherever golden *hásas* resort, to feed and enjoy themselves, happiness and a great future are sure to follow in the land. The country, it was predicted, was to be called 'Hantháwati.' These birds were supposed to live on a beautiful lake in the midst of the Himálaya, which region was, in the imaginations of the tropic-dwelling Taláings, invested with the grandeur of immensity, not unmixed with gloom. There all kinds of lotus flowers of various colours rested on the water, amidst which, never disturbed by man, the birds slept at night, and came to their far off feeding place in the morning.

Now it so happened, according to the divine prediction, more than nine hundred years after the lord had entered Nirvána, that the silvery sandbank

<sup>\*</sup> The *hán*sa, or *hentha*, is still the sacred bird of Pegu. Much discussion has arisen as to its identity. It is not a native bird of the country. The Burmese and Taláings refer to the Himálaya region as its home, and while supposing it to be a superior order of wild duck or goose, describe it in such glowing but unscientific terms, that an ornithologist would be puzzled how to classify it. Spence Hardy in his "Manual of Buddhism," when mentioning *hásas* as inhabiting the Himálaya according to the Buddhist geography, observes: "This is regarded as the king of birds, and by Europeans is generally supposed to be the golden winged swan." Colonel Yule, in his narrative of the Mission to Ava in 1855, suggests that it may be "a mythicised swan." Mr. T. T. Cooper in his book of enterprising travel to the frontier of Eastern Tibet has the following passage, which may be accepted as indicating the bird referred to in the legend. "The large yellow wild duck is met with on all the Thibetan streams and mountain pools at a great elevation. These ducks were precisely similar to the brahmini ducks of the upper waters of the Brahmaputra. I was anxious to secure a specimen and fired at the first I saw, but luckily missed, for a Lama who was with us, rushed up in great consternation. The yellow ducks were sacred to the grand Lama, and to kill one would be a great crime, even to have fired at the sacred bird was an offence." These birds are represented in the "boat scene" of Sakya's death, carved in bas-relief at Sanchi (See Cunningham's Bhilsa tope, Plate XI.) One of them represents a former existence of Gautama's, and probably also of the future Budha Arimateya.





had risen up, so as to be plainly visible above the surface of the sea. A foreign ship which came from the city of Bij-ja-ná-ga-ran, had been on a trading voyage to Tha-htun, and in returning passed near the sandbank. The tide was falling and the sailors saw a number of golden *hánthas* feeding and disporting themselves after their kind. One pair was conspicuous above the rest. The sailors looked and wondered. When they reached their own country, they related what they had seen. Their story reached the king Ban-du-rá-reng. The king's teacher being a man of learning, well read in the scriptures, knew that the lord Gautama had been to that country, and that what had been seen by the sailors was an omen of its future greatness. By his advice, the king determined to secure for his descendants the spot where the *hánthas* had been seen. He, therefore, had a stone pillar engraved with his name and title. This was conveyed in a ship to the spot, and deposited in the sea, close to the silvery sandbank. After this, when one hundred and sixty years had passed, the silvery sandbank had risen much higher and become firm land. King Banduráreng had passed away, and his grandson Ku-wá-tha Ná-reng now reigned. He knowing all that had occurred, sent a ship under a wise man of high rank to make search for the stone pillar deposited by his grandfather, and so to prove his right to the land.

Now at this time A-din-na Rádzá was king of Tha-htun. He was jealous for religion, and had succeeded his father Thin-na-geng-ga to the exclusion of two half-brothers, whose succession had been favoured by his father during his lifetime. The story of their birth is thus told. On the sea-shore, far from the habitations of men, a female dragon came and laid an egg. A hermit who dwelt in a cave hard by, found the egg and took it to his home. In seven days a female child was produced from the egg, who was brought up by the hermit. When grown up, she was married to king Thin-na-geng-ga, and raised to the rank of chief queen. She gave birth to two sons, who were named Thamala and Wimala. The queen, notwithstanding her beauty and the high favour of the king, was always an object of aversion among the nobles of the court, though it was not then known that she was of the Nága or dragon race. This was discovered by the sagacity of the king's teacher, and she then died suddenly in a very mysterious manner. Her two sons were sent away to the hermit, who was called their grandfather, and who brought them up in the forest. On the death of their father, another son of his, called A-din-na Rádzá, succeeded to the throne. The two young princes, by the advice of the hermit, determined to build a city for themselves to the west, on the land where the hermit knew the golden *hánthas* used to feed, and where the lord Gautama had predicted that a great city would arise. They, therefore, collected one hundred and seventy families from the country of Tha-htun, and embarked them on bamboo rafts, ten families on



each. They floated down the stream on the banks of which the rafts had been made, and after many perils, reached the spot where the city Han-thá-wa-ti was to be built. Some people who dwelt on the west side of the river, numbering in all three hundred and thirty families, now joined the two princes, who thus had with them in all five hundred families. When they were considering how to lay out the city, they were suddenly joined by two venerable men, who were Tha-kya Meng (Sekra, or Indra), and an attendant *deva*. They appeared in the guise of carpenters, with instruments, measures, and ropes, and offered to help the princes. This offer was accepted with joy; but when they were about to measure the ground, the nobleman who had been sent by the king of Bij-ja-ná-ga-ran appeared with his followers, and claimed the ground for his master. The two princes replied saying, "You are foreigners, you have no right to our native land." The nobleman answered that when thirteen fathoms of water existed over the spot, an ironstone pillar, with the name, title, and seal of the king of Bij-ja-ná-ga-ran had been placed there. The disguised Tha-gya Meng now replied for the princes that a golden pillar had been placed in that spot before the stone-pillar had been deposited, on which their names were inscribed, and it would be found deeper down than the other. It was argued, therefore, to dig for the pillars, and the right to the land was to be determined by the ownership of the older pillar. Now Tha-gya Meng foresaw by his superior sagacity that, if western foreigners were to be supreme in this land, false heretical opinions would arise; whereas the divine prediction was, that true religion was to be built up; the *bidagát* (*pítakattaya*) was to be recited and revered, and holy relics were to be worshipped. He, therefore, created a golden pillar, on which were inscribed the names of former kings of Tha-htun, and by his power it was conveyed under ground ten fathoms beneath the stone pillar of the Kulás (western foreigners). So when they assembled to dig, and the Kulás had found their stone pillar, Tha-gya Meng said, "Yours is true, but it was placed after ours, which is deeper down, and by which our claim will be proved." The Kulás replied, "If you have an inscribed pillar beneath ours, we will acknowledge ourselves defeated." Then they dug down, and lo! at ten fathoms depth was found a golden pillar, with a date more ancient than that on the stone pillar. The Kulás then acknowledged themselves defeated, and went away taking their stone pillar with them. The spot where the golden pillar was found, being the place where the golden *hánsas* fed, was made the centre from which the city was marked out. Tha-gya Meng measured the ground with a rope on which pearls were strung, so that the land might be sacred, and set apart for ever, free from the rule and ownership of foreigners, or any but its own princes. The golden pillar was moved a little to the south, and a pagoda was then built within which it was enshrined, and in memory of the defeat of the





foreigners it was called, in the Mun language, Kyaik-tsa-né, and in Burmese Ranaung-myin-phrá.\* The city was founded in the year of the lord's Nirvána 1116, being equivalent to A. D. 573. Thá-ma-la Kummá, the elder of the two brothers, was now consecrated king.

In the story of the foundation of the city of Pegu, and the events which led to it, we appear to have the legendary version of the struggle for ascendancy between Brahman and Buddhist. This struggle was still going on in parts of Southern India in the sixth century of the Christian era, and it would no doubt be extended to the colonies and settlements on the coast of Rámanya. The kings of Tha-htun and the principal citizens were of Indian descent, and they probably participated in the changes which were going on in the parent country. The foundation of Pegu, by emigrants of Tha-htun, tells both of a dynastic and perhaps a religious quarrel. The Buddhist party eventually successful, represent the founders of Pegu as being of their faith, and their opponents as heretics and foreigners, though the latter reproach was probably the feeling of a later period. One cause of the separation for Tha-htun appears to have been the Nága, dragon or snake, worship, which, as has been shown by Mr. Fergusson in his learned work, extensively prevailed about this time in India; and the founders of Pegu are stated to have been of Nága descent or, in other words, had added snake worship to the reverence, which, by the precepts of Buddhism, should be shown only to the memory or relics of Budha. If this be so, the reform in their worship was made, as was the case in Burma, at a later period. From tradition and such scanty historical notices as have survived, we are led to look to the east coast of India, and especially to the country in the lower courses of the rivers Kistna and Godávari, with the adjoining districts, in other words ancient Kalinga and Talingána, as the countries which at a very early period traded with and colonized the coast of Pegu. The people of Pegu are known to the Burmese, to the Indians, and thence to Europeans, by the name Taláing. This word is derived from Talingána, and the name which was strictly applicable only to the foreign settlers, has in the course of time become applied to the whole people. As has already been stated, they call themselves Mon, Mun, or Mwun, a word which will hereafter be considered. The names given in the histories of Tha-htun and Pegu to the first kings of those cities are Indian; but they cannot be accepted as being historically true. The countries from which the kings are said to have derived their origin are Karannáka, Kalinga, Thubinga, and Bij-ja-ná-ga-ran. These may be recognised as Karnáta, Kalinga, Venga, and Vizianagaram, on the south-eastern coast of India. The last has, in after times, probably

\* The classic name of the city Hen-thá-wa-ti, or Han-rá-wa-ti, has already been explained. The common name, Pegu or Ba-go, is said to mean in the Mun language "conquered by stratagem," alluding to the incident above related.



been mistaken for the more famous Vijayanagar, the modern city on the Tambudra river. The word Talingána never occurs in the Peguan histories, but only the more ancient name Kalinga. The names of the more prominent kings of Tha-htun and Pegu, all occur in Indian lists, and have probably been selected as pertaining to orthodox Budhists, or as being famous in early legend. Thus king Tiktha, Ti-tha, or Tissa, of Karannáka, whose sons are represented as first coming to Tha-htun, is probably the name of Asoka's brother Tishya. The name frequently occurs among the early Budhist kings of Ceylon. The elder son is called after his father with the affix Kummá; while the name of the younger Dzá-ya, is apparently Ja-ya Sinha, the founder of the Chalukya race in Talingána, whom Sir Walter Elliot\* supposes to have lived in the early part of the fifth century of the Christian era, and Mr. Fergusson about a century later. The eastern branch of this line reigned in Vengidesa, which comprised the districts between the Godávari and the Kistna, below the Gháts, and eventually fixed their capital at Rájamahendri. In the history of Tha-htun, though the two sons of king Tiktha become hermits, they adopt two sons, one of whom builds the city of Tha-htun, and reigns there under the title of Thi-ha Rádzá. This name is probably derived from that of Raja Sinha, the posthumous son of Jaya Sinha above mentioned, who succeeded after a struggle to his father's power, and whose birth and alliance by marriage with his enemies the Pallavas, the possessors of the country south of the Narbadá, are reproduced at Tha-htun in the dubious birth of Thi-há Rádzá from a dragon's egg, though he is brought up by the hermit Dzá-ya. The kings of the Chalukya dynasty who reigned for about five centuries, were of lunar race, and apparently worshippers of Vishnu.† The establishment of this family caused the flight and exile of numbers of Budhists, or quasi-Budhists, from the districts on the sea-coast of Talingána. On this point Sir Walter Elliot has made the following remarks in a communication with which he has favoured me. "There is no doubt, the intercourse between the east coast of India, and the whole of the opposite coast of the Bay of Bengal and the Straits of Malacca, was far greater in former times than at present. It had attained its height at the time that the Budhists were in the ascendant, that is, during the first five

\* See Numismatic Gleanings, Madras Journal of Literature and Science, Vol. XX. Also, Indian Chronology, by J. Fergusson, Journal R. A. Society, 1869.

† The coins of these kings were stampd with the figure of a boar, and thence came to be called 'varáha mudra.' A large number of gold coins bearing this device, and with characters pronounced by Sir Walter Elliot to be an ancient form of Telugu, were found some years ago on the Island of Cheduba, on the coast of Arakan. They were probably of the fifth century. They were found not far from the sea shore disposed as if hidden by persons wrecked on the coast, or otherwise landing suddenly. They were not at all worn by usage. One of these coins was figured and described by Captain T. Latter, in Jour. As. Soc. of Bengal, Vol. XV., p. 240.



“or six centuries of our era. The first great Buddhist persecution both checked it and also drove great numbers of the victims to the opposite coast. The Tamil and Telugu local histories and traditions are full of such narratives. When the Chalukya prince, brother of the king of Kalyán, was founding a new kingdom at Rájamahendri, which involved the rooting out and dispersion of the pre-existing rulers, nothing is more probable than that some of the fugitives should have found their way to Pegu. One Tamil MS. refers to a party of Buddhist exiles, headed by a king of Mandu, flying in their ships from the coast.”

The building of the city of Pegu in A.D. 573, by emigrants from Thah-tun under the princes Tha-ma-la and Wi-ma-la, together with the attempted occupation of the site by the representatives of the king of Bij-já-ná-garan, have already been related and commented on. There appears no reason for doubting the general facts of the narrative; and it may be admitted that the princes and people of Indian descent in Rámanya, while having causes for dissension among themselves, may have resisted the attempted establishment of a new dynasty from Talingána. But as has already been observed as regards the names of the early kings of Thah-tun, so the names of the actors in the scenes at Pegu, have probably been taken in after times from the chronicles of Talingána, or even of the modern state of Vijayanagar. The name Vimala occurs in the list of kings of the latter state so late as A. D. 1158. I have not found the name Thamala, but the term Malla as a surname occurs constantly among the Chalukya kings of the western line, commencing with Yuddha Malla in A. D. 680.

The early establishment of a colony, or city for trade, on the coast of Rámanya by settlers from Talingána, satisfactorily accounts for the name Taláing, by which the people of Pegu are known to the Burmese and to all peoples of the west. But the Peguans call themselves by a different name. It remains then to be inquired whether we can trace from what race they are descended; whether, like the peoples around them—the Burmese, the Szamese, and the Karens—they belong to the Indo-Chinese family, a branch of the Mongoloids of Huxley, or come from another stock.

The people of Pegu, as has already been stated, call themselves Mun, Mwun, or Mon. Their original language has almost disappeared. It is probable that there are not now one hundred families in Pegu proper, in which it is spoken as their vernacular tongue. In the province of Martaban, however, including a part of Maulamyaing, there are thousands who still speak the Mun language only. These are chiefly the descendants of emigrants who left Pegu in 1826, when the British army retired and occupied the Tenasserim territory. The Burmese, since the conquest of Pegu by Alompra (Alaung Phrá) in 1757-58, had strongly discouraged the use of the Mun language. After the war with the British, the language of the people





who had welcomed the invader, was furiously proscribed. It was forbidden to be taught in the Buddhist monasteries or elsewhere. The result has been that in little more than a century, the language of about a million of people has become extinct.\*

In physical appearance, the Mun people are scarcely distinguishable from the Burmese. They are, however, shorter and stouter, and notwithstanding their more southern position, are generally lighter in complexion than Burmese of the same class. Indeed the higher classes of the Muns, and those whose callings in cities and towns do not involve much exposure to the sun, are much fairer than those of the same classes in upper Burma. This may be partly attributable to the large admixture of Shan blood from Zimmé and the adjoining states, which occurred at a comparatively late period of their history. But there are also climatic causes. For about six months of the year, the sky of Pegu is more or less obscured with clouds; and the habit of carrying umbrellas as a protection against sun and rain is much more common with the Taláings than among the Burmese. But the question of complexion among many Indo-Chinese tribes is certainly perplexing. Some of the Karen tribes in the mountains, especially the younger people, are not darker than southern Europeans; while those settled in the delta of the Eráwati, are much the same in that respect as the Mun people among whom they dwell. While then the physical characteristics of the Mun would lead us to class them with the Indo-Chinese around them, their language points to a different conclusion. I believe this peculiarity was first brought to notice by the Rev. Dr. Mason, Missionary to the Karen people. That learned man has, in his work on Burma, pointed out the remarkable similarity between the language of the Mun of Pegu, and that of the Hóro or Mundá people of Chutiá Nágpúr, called the Kols. The first syllable of the word Mundá, which is used, as I understand, to designate the language of several tribes in the western highlands of Bengal, rather than as a tribal name, is identical in sound with the race name of the people of Pegu. The connection of the two peoples as shown by the similarity of their languages in a series of test words, has been commented on by the Honourable Mr. Campbell in a paper on the Races of India in the Journal of the Ethnological Society. We appear then to be forced to the conclusion, that the Mun or Taláing people of Pegu, are of the same stock as the Kols, and other

\* There are, however, some thousands of the Mun people in Siam, who emigrated there towards the end of the 18th and in the early part of the 19th centuries, to escape the cruel rule of the Burmese. Descendants of Mun colonists from Tha-hun were heard of by Dr. Richardson, in April 1837, as being located on the northern frontier of the Karenni country. They were said to have been originally placed there by king Naurahá, being a part of his captives. It would be interesting to know if their language remains unaltered.



aboriginal tribes of India, who may have occupied that country before even the Dravidians entered it. Csoma de Kőrös, in his Tibetan Dictionary, defines Mon as a general name for the hill people between the plains of India and Tibet. Assuming that a people having that name, once inhabited the eastern Himalaya region, and migrated to the south, we have now no means of tracing whether the Mun of Pegu came direct down the course of the Eráwati, or parting from their kinsmen the Kolarian tribes in the lower course of the Ganges or Brahmaputra, came through Arakan to their present seat. There appear now to be no indications of their presence, either in Arakan or in the country of the Upper Eráwati; though more careful inquiry into the languages of some of the wild hill tribes, between Arakan and Manipúr, might possibly show their track. The Dravidians of Talingána, who beyond all doubt came by sea to the eastern shores of the Bay of Bengal, probably a thousand years before the Christian era, found the Mun rude savages, who even some five centuries later, are called *bhilús*, or ogres. Yet the Dravidian colonists have been merged into the mass of that wild race. Their name indeed remains in the word Taling, but it is known only to foreigners, and is not acknowledged in the language of the people. Though the alphabet used by the Mun is derived from an Indian source, through the Dravidians, there is probably little or no trace of the language of that race in the Mun tongue.

The city of Pegu having been founded, the historians of the Mun people thenceforth make it the centre round which the fortune of their race revolves. Thamala was consecrated king by the solemn ceremony of *bithé-ka*, or water poured on the body, and assumed the title of Mahimu Thamala Kummára. This king is stated to have built the city of Mutamau (Mutama, or Martaban), three years after the foundation of Pegu; and he founded other cities in the territory he reigned over. But after a reign of twelve years, his younger brother Wimala conspired against him and put him to death. Thamala left a son who then was seven years old. He was concealed by his mother and sent to a wild district in the hills, east of the Tsit-taung River, where he was brought up amidst a herd of wild buffaloes.

Wimala was consecrated king. In the third year of his reign, he built the city of Tsit-taung (Sittang). After he had reigned five years, in the year 590, A. D., the king of Bij-ja-ná-ga-ran sent an army with seven ships, and a champion seven cubits high, to conquer Han-thá-wa-ti. It was agreed that the quarrel should be decided by a fight between two champions. The whole country was searched, but king Wimala and his nobles could find no one to meet the Kulá giant. At length appeared the lost prince, the son of Thamala, who now was sixteen years old. He fought and slew the giant. His uncle now offered to abdicate the throne; but he would not consent to reign, and again retired to the forest, east of the Tsit-taung River. There





he built the city of Ka-thá in the mountains. King Wimala died not long after, and the young prince then became king with the title of Kathá Kum-má. His reign was prosperous, but lasted only for seven years. Thirteen kings are represented as succeeding these founders of the kingdom, but the hereditary succession was broken by usurpers. The monarchy, however, gradually established its power over the whole country of Rámanya, from Puthin (Bassein) on the west, to Mutamau on the east. Tha-htun appears to have gradually declined, and remained merely as a city and sea port with little territory. The sixteenth king of Pegu, an usurper, is named Punna-rika, or brahman-heart, which indicates religious strife as introduced at this time (A. D. 746). He is said, however, to have been eminently religious, and even to have listened daily to the preaching of the Buddhist Raháns. But he is represented as inclined towards the ancient Hindu traditions; for he built, or re-established, the city of Aramána, which is said anciently to have occupied the site of the present city of Ran-gun. He called this city Kámanágo, or city of Káma. At this time, says the Taláing historian, as if anxious to save the king's character as a Buddhist, the land of the Shwé Ta-kun (Dagon) was not distinctly marked off, so that no impious encroachment was made. To the north of this city was built another, which was called Rámawati, now Mengaládun. This king died after a reign of fifteen years. Both his name and the occurrence of Ráma in the name of two cities he built, indicate an actual or attempted revival of Hinduism.

Punnarika was succeeded by his son Tiktha or Tissa, who was very different in his religious views, but who was at length converted and became a sincere believer. In the early part of his life, he was ensnared in the heretical doctrines of Dewadát, rejected the Bidagát, and would neither worship the pagodas, nor listen to the preaching of the Raháns, nor follow the learning of the Brahmans. Not content with this, he destroyed the pagodas, mutilated the holy images and flung them into the river; he prohibited by proclamation the worship of these or of holy relics, and threatened with the punishment of death all who should dare to disobey his decree. The people were dismayed, and remained helpless, but were rescued from peril by a miraculous occurrence. There was a young girl in the city of Han-thá-wa-ti, the daughter of a wealthy merchant, who had been religiously brought up by her mother, and from the age of ten years had listened to the preaching of the law. Badra Devi was sincerely devoted to the worship of the three treasures. She was sixteen years old when the order went forth to throw the holy images into the water. One morning, she went, as was her custom, surrounded by her attendants, to bathe in the stream, and seeing a golden image which had been flung into the water, she drew it out, saying, "Who has done this wicked deed?" The chief attendant replied, "Lady, the king has ordered this, and will put to death any one who worships the holy





“images and relics.” The maiden said, “I will devote my life to the three treasures, and will endure death rather than forsake them.” She then carefully washed the image, and set it up in a zayát which was close by. News of this was soon carried to the palace, and the king in a fierce rage called for Badra Devi. When the messengers arrived, the maiden was still employed in cleaning and decorating the holy image, and she entreated them to let her complete her pious work. Having finished, she then with her attendants proceeded to the palace. When the king heard the report of the messengers, he raged like a hungry lion at the sight of harmless animals. He ordered that the maiden should forthwith be trampled to death by a mad elephant. The master of the elephants having brought a mad one, the animal was urged on to crush the maiden. But she invoked the protection of the three treasures, and the seven good náts, while she prayed for blessings on the king, on the elephant, and on its driver. The elephant could not be made to hurt her. Again and again he was urged on with violence, but he would not obey. The king then ordered that she should be burnt with fire. She was thickly enveloped with straw, but the straw could not be kindled. The king then ordered that she should be brought before him. She appeared with becoming modesty and respect, while the king bawled out contemptuously, “Thou hast taken thy teacher’s image out of the water, and placed it in a zayát; if the image will fly through the air into my presence, I will spare thy life; but if not, thy body shall be cut into seven pieces.” Badra Devi begged to be allowed to go to the zayát, and respectfully to invite the holy image. She and her attendants therefore went, and certain nobles of the court were sent to watch them. The maiden prayed to the three treasures and the seven good náts, that the image might fly through the air to the king’s palace. Then straightway the image, the maiden, her attendants, and the nobles, were borne through the air to the royal feet. The king much astonished, said: “Let the Dewadát teachers fly through the air, so that all the people may see them.” But they could not do so. The king then believed the truth, and banished the false teachers from his country. Then asking the consent of her parents, he married Badra Devi, and she was consecrated chief Queen. The pagōdas and other holy buildings were now repaired, and the people rejoiced greatly. King Tiktha reigned for twenty years, and with him closes the line of seventeen kings who represent the three native dynasties of Pegu.

A gap now occurs in the narrative of events which the native historians either have not attempted to bridge over, or have noticed with only a few general statements. In a preliminary sketch to the copy of the history which I possess, it is stated that the first seventeen kings, extending from the foundation of the city of Hantháwati to king Tiktha, reigned for a period of five hundred years. But in the detailed account of the reigns of those





kings, the sum of the years they are stated to have reigned, amounts to only two hundred and eight. The first part of the history then closes as if a great crisis had been endured. A new chapter is opened which simply states that the destinies of Hantháwati were accomplished; the line of kings broken; and the writer then bursts forth in lamentation over the rule of foreign Burmese kings and their hateful governors. Three of these are mentioned and reviled, and the narrative then passes on to events near the close of the thirteenth century of the Christian era, when Mongols and Turks overthrew the Burmese monarchy; Pugán was captured, and her king a fugitive. Supposing that the seventeen kings represent in some fashion the events of five hundred years, then the close of king Tikthá's reign would be about A. D. 1073. From that time until the capture of the Burmese capital by the Mongols, there is a period of about two hundred and eleven years, of which the Mun chroniclers say nothing, except the loss of their native kings, and the rule of three hated foreign governors. This hiatus is not peculiar to the manuscript history which I possess, but may be traced in others. Thus Dr. Mason from the copy which he followed, dates the foundation of Pegu A. D. 573 and the death of Tik-tha A. D. 841, but immediately after this, there is a blank of more than three hundred years. In Major Lloyd's Gazetteer of the District of Rangun, in which a list of the kings of Pegu is given from native records, this blank does not appear. But that is, because the foundation of Hantháwati has been post-dated to A. D. 1152, a year quite impossible to be reconciled with the histories of Burma, Tha-htun, and the subsequent history of Pegu itself. The cause of these great discrepancies arises from the Talaing historians having sought to conceal the religious revolutions in their country, during the ninth and tenth centuries, and to avoid narrating the conquest of their country by Anaurahtá, king of Pugán, about A. D. 1050, with its continued subjection to Burma for more than two hundred years. And it is strange that in the Burmese Mahá Rádzá weng, though the conquest of Tha-htun is narrated at great length, nothing is said of the occupation of the city Hantháwati. Yet no doubt, the city was then taken by the Burmese king. Either then it was supposed that the capture of the ancient city of Tha-htun rendered special mention of Pegu unnecessary, or the chroniclers hesitated to record the first instance of the falsification of the legend, which in the cause of religion assigned to Pegu a perpetual succession of kings in the line of Thamala kumára. The Talaing historians have endeavoured to represent their country as having been uniformly orthodox Buddhist, while the records they present to us, show that there have been frequent alternations of Buddhism and Brahmanism. The names of the two last kings of the native dynasty, Punnarika and Tikthá, with the few notices we have regarding them, show that their reigns represent periods of religious strife between the two great sects, and





the attempted introduction of a form of worship antagonistic to both. Punnarika, or "brahman-heart," sufficiently indicates the influence during one period; while the name Tiktha, or Tishza, identical with that of the brother of Asoka, points to a corrupt Buddhism, and the re-establishment of that worship. This is typified in the pleasing legend of Badra Devi, and Buddhism has been the cherished religion of the people from that time until now.

From the time of Anaurahtá the history of Pegu becomes clearer. The measures of his successors in that country are constantly referred to in Burmese history. His son and successor Tsau-lú appointed his foster-brother Ra-mán Kán governor of Pegu. But he ungratefully rebelled, and marched with a large army of Taláings against Pugán. At first he was successful, but was at length killed. In the reign of A-láung-tsí-thu, which extended from A. D. 1085 to 1160, Bassein was the principal port of departure for Ceylon, with which island there was much communication. This king sent an army of one hundred thousand Taláings, to place the exiled son of the king of Arakan on the throne of his ancestors. From this time until near the final destruction of Pugán about A. D. 1277, or by one reckoning 1284, there is ample evidence that the Burmese were supreme in Pegu. During this period, the Shans had come down from Zimmé, and occupied the country east of the Than-lwin (Salwin) River. The time was at hand when they were to become supreme. With the capture of Pugán by the hordes of Kublai Khan, Pegu began to revive. The Burmese king called from his flight Taruk-pyé Meng, fled from his capital to Bassein, ready no doubt to embark for Ceylon if necessary. The Taruk did not follow, but left the country, and the king returned to his capital. But the Burmese monarchy was now tottering, and in the confusion which arose, the Taláing people found the opportunity to recover their independence, though under a foreign dynasty of kings.

The Mun chronicles thus relate the events which led to the re-establishment of the kingdom.

"Now at this time, the country of Hantháwati paid tribute to the king of Pugán, and officers were appointed to rule these, and were relieved in turn. A youth of Burman race, named Akhámwun, lived with his father and mother near the city, and was placed for instruction in a monastery, where he became a probationer. The Abbot soon perceived that he was a youth of great ability, and judged that from the accumulation of former merit, he would become a great man. After passing the grade of a Thámané, he left the monastery, and married into a Taláing family. Being appointed an officer in one of the royal boats, he in time took his turn of duty at Pugán, where he attracted the attention of the king by his zeal and energy, and was promoted to the command of the boat. One



"night he dreamed that he stood with one foot in Hantháwati, and one foot in Pugán, which a Brahman interpreted to mean that he would become a king. On the return of his boat to Pegu, he was careful in collecting what was due from the people, to prevent extortion, and having become popular through the help of his father-in-law, many of the merchants and wealthy citizens joined him. His first care was to repair the city walls, which had been suffered to go to decay. The king of Pugán hearing of this plot, appointed his son-in-law Commander-in-Chief of an army to reduce the city to obedience. This army was defeated, as well as a second, and at last Akhámwun proclaimed himself king with the title of Thu-nek-khau-tsá Rádzá." These events occurred, it is stated, about the Burmese year 635, or A. D. 1273, but the dates given in the Mun chronicle are not to be depended on. Probably the Burmese usurper had at this time sufficient power to be practically independent; but it is not likely that he proclaimed himself king before the fall of Pugán, which, as we have already stated, was some years later.

Akhámwun no sooner was king than he belied all the promise of his former life, and by his tyranny became hated. He was at length put to death by his brother-in-law Leng-gyá, after he had reigned two years. Leng-gyá had possession of the palace for eight days, and was then killed by Akhyémwun, who was also a brother-in-law of Akhámwun. Akhyémwun was now consecrated king of Pegu with the title of Tarabyá.

At this time Muttama (Martaban) had become independent of Pegu. It was ruled by Wa-ré-ru, who had deposed the Burmese governor A-lim-ma and put him to death. The kings of Muttama and Pegu, feeling that they must combine, made an agreement of friendship, and each married the other's daughter. Taruk-pyé-meng, who was still king of Pugán, sent an army under Rádzá Then-gyán, to reduce Pegu to obedience. The king of Pegu occupied the stronghold of Than-lyeng (Syriam), and had a stockade at Ta-kun. The Burmese force was at Dala. The positions were all so strong, that neither party would make an attack. Waréru then came with an army to the assistance of his ally, and the two kings advanced by land and water against Dala. They were entirely successful, and after several actions, the Burmese were forced to retire. The allied kings followed the Burmese up the Eráwati as far as Padáung. They then returned and encamped at Makán, south of the city of Pegu. Here dissension arose between the two kings which ended in a fight. Tarabyá was defeated and fled. Wa-ré-ru at once marched, and took possession of the palace and capital. Tarabyá was captured by some villagers and delivered up as to his rival, who, at the intercession of the Buddhist monks, spared his life. Wa-ré-ru, now king of the whole country, did not choose to fix the seat of his government at Pegu, but after having settled the affairs of the country, returned to Muttama,



taking Tarabyá with him. The deposed king was soon after put to death for entering into a conspiracy.

Of the birth and parentage of Wa-ré-ru there are conflicting accounts. The history which I follow, relates that there was at Muttama a merchant of the name of Magadu who traded to the adjoining countries. To the east was the country of Thuk-ka-té, the name of the ancient capital of Siam, or the ancient seat of the royal family, situated on a branch of the river Menam. Magadu went to Thuk-katé, and entered the service of the king of that country. He either possessed a female elephant which gave birth to a white one, or he captured a white one in the forest, which he presented to the king. This was regarded as an omen of his future high destiny. On returning to Muttama, he raised a rebellion against Alimma, the Burmese governor, and put him to death.\* After this, there is some obscurity in the narrative as to the fate of Magadu, and it might almost be supposed that he disappeared. But this arises from the respectful reserve of the chronicler, who refrains from stating distinctly that the *quondam* merchant Magadu became king of Muttama under the name of Wa-ré-ru. It is intimated that his great fortune resulted from the merit of his good deeds in former births. In fact, he was descended from one of the Nat-Bhílú who listened to the preaching of Budha, when he came to the wild region east of Tha-htun, instead of joining those who impiously drove him away. Thus he is claimed as a Mun by race, though it is probable that he was descended from a Shan family from the eastward, which had settled in the country of the lower Than-lwin (Salwin).

Wa-ré-ru was now king of Mut-ta-ma. He was anxious to possess a white elephant, which is the great object of the ambition of a Buddhist king, and especially of an usurper, as it is supposed to indicate his true royal descent. After much negociation with the king of Thuk-ka-té, or Siam, a white elephant was forwarded by that monarch. This occurred in the Burmese year 655 (A. D. 1293), six years after Waréru had become king. As the strength of his kingdom lay in the country of the Salwin, where the Shans had been settling for several generations, the king made Muttama his capital, though, as we have already seen, he had dethroned Tarabyá and occupied Pegu. The Taláing historians, however, as he did not reign in their ancient capital, do not include his name among the kings of Hantháwati.

After the fall of the ancient Burmese monarchy, the Shan chief A-theng-kha-yá, with his two brothers, ruled at Myin-tsaing what still remained of the empire. Having heard of the fame of Waréru's white elephant, he determined to possess it. He marched with an army to Muttama and demanded that the sacred animal should be delivered to him. This was refused,

\* In the Burmese Mahá Rádzá weng, the year of Alim-má's death is said to have been A. D., 1281.





and in a battle which took place, the Shan-Burman army suffered a complete defeat. After this, the kingdom had peace for some years. But the two sons of Tarabyá, who were kept in the palace, conspired against Wa-ré-ru, and put him to death. They, however, had no supporters, and were obliged to fly. They took refuge in a monastery, but were dragged forth and killed. Their bodies were brought and laid at the feet of the king's body, and the three were burnt together. King Waréru died thus in the year 668, after a reign of nineteen years.

He was succeeded by his brother Khun-lau, whose first care was to solicit recognition of his title from the king of Siam. This was granted, and the regalia were forwarded to him with a suitable title. Not long after this, the king of Zimmé attacked Dunwun, a city on the east side of the Tsit-táung river, and plundered it. The king took no measures to defend his territory, and seeing that he was a man of no capacity and careless of the honour of his country, Meng Bala, who was married to his sister, conspired against him. He was persuaded to go out in the forest, under pretence of entrapping a wild elephant said to have three tusks. Having inveigled him into the thick depths of the forest, he was put to death after a reign of four years.

Meng Bala at first intended to seize the throne himself, but by the prudent advice of his wife, he made their eldest son, Dzáu-áu, king. The young king was married to a daughter of the king of Siam. But notwithstanding this alliance, he before long was involved in hostilities with La-bun, a small Shan state then tributary to Siam. He sent a force and occupied it in the year 682. In the following year, he marched an army under Khun-meng as Commander-in-Chief to take Dhawé (Tavoy). The city having surrendered, the general marched on to Tanengthári (Tenasserim), which he took without difficulty. He left garrisons and governors in both those cities, and then returned to Muttama with the remainder of his army. During the reign of Dzáu-áu, the country was prosperous. But the king's life was short, and he died after a reign of thirteen years. The kingdom of Muttama which included Pegu, had now become independent of Siam, and from the still disturbed state of Burma, it had nothing to fear from that country. But in this reign first commenced the quarrel between Pegu and Siam, which in long after years led to wars, terribly destructive to life, and which have been the main cause of the present depopulation of the country. The quarrel was continued, when Burma succeeded by conquest to the rights of Pegu, and lasted down to the early part of the present century.

The successor of Dzáu-áu was his brother, Dzáu-dzip, who, at his consecration, assumed the title of Binyaranda. This king, after consulting with his nobles, determined to change the seat of government to Hantháwati. He went there in great state leaving a governor and a sufficient garrison at



Muttama. Soon after reaching Pegu, he went to Takun (Rangun), repaired the great pagoda and made offerings. The governors of Puthin (Bassein) and Myoung-mya rebelled, but were soon overcome. Though the kingdom in the delta of Eráwati was thus consolidated, the southern provinces were lost, the king of Siam having retaken Dhawé and Tanengthári. Binyaranda, though unable to retain those distant possessions, thought the time was favourable for making an attack on Prome. That city has always been an object of keen contest between the kings of Burma, and Pegu. At this time, the chiefs of Shán descent who reigned in Burma, had not consolidated their power, and some subordinate chief, whose name is unknown, was supreme in Prome. Binyaranda went against that city with a considerable army, but he was repulsed and killed in the year 692 (A. D. 1330). In the confusion which arose on the king's death, an officer of the palace at Muttama, called Dib-ban Meng, seized the throne and made one of Binyaranda's daughters, named Tsanda Meng Hlá, his queen. He was, however, put to death by the Commander-in-Chief on the seventh day of his reign. For a few weeks also, a son of Dzáu-áu reigned with the title of Egán-kan, but by the influence of the queen who hated him, he was poisoned.

The person now called to the throne was a son of Khun-láu, who at this time was governor of Hantháwati; for, notwithstanding the change made by Binyaranda, the palace and seat of government seems to have been again at Muttama. Queen Tsanda Meng Hlá invited the governor to come and settle all disputes. He came to Muttama with a large retinue, and was at once consecrated king with the title of Binya-é-láu. Tsanda Meng Hlá became chief queen. The king of Siam was angered, because E-gán-kan was the son of his daughter, and he sent an army to avenge the death of his grandson. His army was completely defeated, and the two countries were now at deadly enmity. Though Muttama was now free from a foreign enemy, it suffered from a struggle between the king's son Tsau-é-lan and his nephew Binya-ú, a son of king Dzáu-dzip. While the king was lying sick, these young princes disturbed the country by their quarrel for the succession. The king recovered and placed Binya-ú in jail, but on the intercession of the queen, released him. Before long, his own son died, which left the succession undisputed. Binya lau reigned eighteen years, and died in the year 710, A. D. 1348. His reign on the whole was prosperous, but it is noted as a bad omen that the white elephant broke one of his tusks; that a severe famine desolated the country; and that there were constant border frays with the Burmese on the northern frontier.

Binya-ú succeeded without any opposition, and assumed the title of Tsheng-phyú-sheng. After he had been on the throne for three years, an attack was made by the Yun Shans of Zimmé on Dun-wun and several towns in Tsit-táung. The country was plundered, but the enemy was at



last driven out. The king, anxious to possess a holy relic, sent a nobleman in a ship with five hundred followers, and a letter written on golden tablets to the king of Ceylon, to ask for a relic of Budha. The king of Ceylon, full of friendship and beneficence, granted the request, and placing the holy relic in a golden vase, which was enclosed in other vases, all carefully sealed up, delivered it to the Peguan envoy. It was brought to Muttama, where it was received with great pomp by the king. A pagoda was built for its reception at the spot where the Yun Shans had been defeated.\* Notwithstanding this happy event, misfortunes began to gather round the king. The governor of Pegu rebelled. He was subdued; but the white elephant, in Buddhist phrase, 'erred,' that is, died; and the whole population, from the king to the peasant, clergy and laity, were in an agony of grief. For this portended dire misfortunes to the country. The white elephant received a grand funeral, the body being drawn by the people on a car beneath a royal canopy, outside the city where it was buried in the earth. "But one account," adds the chronicler doubtfully, "is, that the elephant rose up from the funeral car, and stalked majestically into the river, where the water closed over it, and it was seen no more." Some Karen people, not long after, reported that a white elephant had been seen in the forest, and the king, with his whole court and a large army, went to capture it. He was absent for four months, and during that time, his half brother or cousin, named Byát-ta-bá, raised a rebellion. The first intimation the king had of this event was from seeing a star strike at the moon. This was interpreted by his Brahman astrologer to mean rebellion. Returning hastily towards the city, the king heard that Byát-ta-bá had shut the gates, and that his brothers were levying men in the country outside, with whom they entered. The city was defended with cannon,† so that the king could not attack it, and the wives and families of the nobles who were in the royal camp, were inside the city. Many therefore deserted the king, and went over to the rebels. The king retired to Dunwun, and appointed his brother-in-law Thamin Byá-ta-bát, general against the rebels. He closely invested the city, so as to prevent supplies being carried into it. By an artifice of the wife of Byát-ta-bá, who sent a secret letter to him, pretending that she was on the side of the king, he accepted some dishes which she sent, and died from the effects of eating them. The whole of the investing army then fled. Another commander

\* In the histories of Burma and Pegu, many instances are related of relics, or supposed relics, being brought to the country from Ceylon. The facts are gravely related, but nothing seems to be known of the relics afterwards, except the hairs of Budha which are enshrined beneath the Shwé Dagon, and are as freshly remembered and worshipped now, as they were two thousand four hundred years ago.

† This is the first mention of cannon in the history, about the year A. D. 1370. Nothing is said as to where they were procured from.



was then appointed ; but he was killed by a bullet almost immediately, and his army broke up and dispersed. The king now in despair shut himself up in Dunwun city, which was situated between Muttama and Tsit-taung.

Byát-ta-bá, though so far successful, knowing that many of the people of Muttamá were not well inclined towards him, sent a letter and messengers to the king of Zimmé, asking for assistance, and offering to hold Muttamá as his general and deputy. Hearing of this, Binya-ú seeing that his position was becoming desperate, himself sent messengers and presents to the king of Zimmé and offered one of his daughters in marriage. This was accepted ; the march of the Zimmé troops was stopped, and Binya-ú, though unable to recover what he had lost, was not disturbed at Dunwun. There he remained for six years. Byát-ta-bá in the meantime strengthened his position, and at length gained possession of Dun-wun by a stratagem. The king fled on an elephant almost alone, and came to the city of Pegu. This was in the year 732 (A.D. 1370), being the twenty-second of his reign. Byát-ta-bá had now firmly established himself in Muttamá, and to show his sympathy with the southern T'hái people, made his subjects shave their heads in the Siamese fashion. The only opposition to this order was shown in Dunwun.

Binya-ú now turned his attention to the districts of Pegu which were put in order, and walls were built round the chief cities. After a time, by tacit understanding, there was peace between him and Byát-ta-bá. The king caused the great pagodas, Shwé Maudau and Shwé Dagon to be repaired. His son Binya-nwé caused him much anxiety by his intrigues. The king wished one of his younger sons to succeed him, but did not formally appoint him heir-apparent. Binya-nwé finding his father under the influence of the queen against him, began to gather friends to support his interests. Having secretly engaged followers, he left the city at night and joined them. He took possession of the town and pagoda at Ta-kun, where he engaged the services of some western foreigners.\* This was in the month Na-yun 745 (A. D. 1383), when there was an eclipse of the sun. The king was now too ill to make any exertions to uphold his authority, and all orders were issued by the queen. An army was sent against the prince, which he went out and defeated. He did not feel strong enough to attack the capital until he had collected a larger force. He then marched, and while on the way heard of the death of his father. This event stopped all resistance. Thamin Paru, the general who had been employed against him, attempted to escape, but was made prisoner and put to death. Binya-nwé ascended the palace in the month Tabodwé, 747, A. D. 1385.†

\* Most probably Muhammadan adventurers from India or the Persian Gulf. They had been coming to this coast for many years past.

† In the Burmese history, this event is placed in the year 745. See Journal, As. Soc. of Bengal, Vol. XXXVII, for 1869.





The young king assumed the title of Rádzá-di-rít. He rewarded all those who had supported him, and put very few of his enemies to death. The queen had bitterly opposed him, yet, in remembrance of her care of him when he was a child, after his own mother's death, he now treated her with respect and honour. There was one powerful nobleman who had opposed him, and who was still unsubdued. This was Láuk-byá, the governor of Myáung-myá, who was of the royal family. He hated Rádzá-dirít, whom he denounced as no son of Binya-ú's, and was determined not to submit to him. He now caused the renewal of the struggle between Burma and Pegu, which had ceased for about a century, or since the fall of the Pugán monarchy, and which only ended in the entire subjection of Pegu about the middle of the eighteenth century.

At this time, Ava was the capital of Burma, and the king Tárabyá, though said to be descended from the ancient kings of Pugán, and also through his mother from the family of the three Shán brothers who succeeded them, was essentially the chief of a Shán dynasty. The king of Pegu belonged to a southern branch of the same race. Láuk-byá seeing that the king of Ava had subdued all his enemies, sent messengers to him, offering, if he were placed on the throne of Pegu, to hold it as a tributary king. The king of Ava therefore sent an army, composed of two columns under the command of his sons, to carry out this plan. One of these marched by the E-rá-wa-ti to Láing, and one by the Tsit-táung or Páung-láung River to Táungú. Both were defeated by Rádzá-dirít before Láuk-byá could arrive to support either, and they retreated to Ava. The history of Pegu states that the king of Ava accompanied his army on this expedition, but this does not agree with the Burmese history. The king of Pegu was sensible that his victory resulted more from the difficulties in the country which the Burmese army had to encounter, than from the superiority of the force he was able to bring against them. He, therefore, sent envoys to Ava with a letter and presents, hoping to establish friendship with the dreaded monarch. But the king of Ava remarked that the letter was a short one, and sternly replied that the Ta-láing country belonged to his ancestors, and would be recovered. The presents were scornfully rejected, and the envoys returned sorrowfully to their master. Thus the present king of Burma showed his determination to recover, if possible, all that had once belonged to the kings of Pugán; and Rádzá-dirít had nothing for it but to prepare for resistance. Láuk-byá addressed the king of Ava, excusing himself for not having appeared with a force to support the Burmese army, and again tendering his allegiance. When the season arrived, Tárabyá marched down the valley of the Eráwati, and as in the previous campaign, established himself at Láing. The king of Pegu was entrenched in a strong position at Mau-



bi, a few miles to the north of Ta-kún. This stockade the Burmese could not take, and were delayed so long before it, that the dreaded rainy season approached. They made a sudden retreat, which turned into a disorderly flight. The Mun army pursued them as far as Prome, but did not venture to attack that city. Being thus rid of the invader, the king determined to reduce to obedience those near him who were dangerous. He first directed his attention to the eastward. He attacked and took Dunwun, the chief of which city had been in communication with Láuk-byá. He next took Lagwunpyin, and from thence sent one of his officers to attack Muttamá. Byat-ta-ba does not appear to have remained in the city, which was defended by two officers having the foreign names of E-bran and U-lé.\* They had several decked boats useful for service on the rivers and creeks, and did not wait to be attacked in the city, but fought a battle outside. The army of the king of Pegu suffered severely, but in a second action this check was retained, and the two commanders of the Mataban army, fearing to enter the city, fled in decked boats to the Kulá country. Byát-ta-bá appears to have accompanied them. The citizens at once submitted, and Rádzádirít coming to Muttamá appointed governors to it, and to Maulamyáing. These events occurred in the year 750 (A. D. 1388), and the king then returned to Pegu.

Rádzádirít now determined to attack Láuk-byá in Myáung-myá. He went against that place with a large force, but finding it too strong, he advanced against Pu-thin (Bassein), where Láuk-byá's three sons commanded. He attacked, but the foreign decked boats were armed with fire-arms, and the Pegu force lost many killed and wounded. The general was among the former. His body was brought away and buried by the king's command at the foot of the Ta-kun pagoda. The Pegu force retreated towards Myáung-myá. The Puthin force being very strong in boats, followed under the command of Láuk-shin, one of the sons of Láuk-byá, but suffered a defeat. The king remained at Dala to direct operations and a portion of Láuk-byá's force was destroyed; he himself was made prisoner and Myáung-myá surrendered. The king then pushed on to Pu-thin, and Láuk-shin put all his valuables on elephants, intending to join the king of Prome. But being intercepted, he crossed the mountains into Arakan, and went to Than-dwé. An army followed and demanded that he should be given up. The governor surrendered him, and he was made a pagoda-slave at the Shwé-dagun. His wife being of the royal family, was spared and sent to Muttama. This was in the year 752, A. D. 1390. The

\* From the decked boats and the names of the commanders, which are probably Ibráhim and 'Alí or Wálí, there evidently were foreigners in high command at this time. No mention is made of fire-arms in these operations, but immediately afterwards there is, in the account of the attack on Bassein.





king now beautified the city of Hantháwati. In the following year he collected a force at Pu-thin, with which he advanced against the city or fort of Ku-dwut on the frontier, which had been occupied by the king of Burma. The Burmese retired on his approach, and he strengthened the place. During his absence he suspected his eldest son of conspiring against him and had him put to death. The prince died protesting his innocence, and openly wishing that he might be born king of a neighbouring country to take his revenge for this injustice.

The king of Siam sent a white elephant and a letter, acknowledging Rádzádirít as being of the same race as himself. Soon after, the king of Ava came suddenly to attack the fort of Ku-dwut. An army was sent to support the garrison, and the king of Burma retired. Rádzádirít now had leisure to attend to the affairs of his kingdom.

The king of Ava, Meng kyi-tswá Tsau-ké, died, and was succeeded by his son Tsheng-phyú sheng. But he was soon after murdered, and his brother Meng Kháung was placed on the throne in the year 763. About this time, we learn from the histories of Arakan and Burma, that a quarrel arose between those two countries, though the causes are not distinctly stated. In the former it is related that, in the year 756 (A. D. 1394), the king of Arakan marched to attack the Burmese territory. But in the latter history, this event is placed in the year 765, which agrees better with the chronicles of Pegu.\* From whatever cause this difference of date may have arisen, it is certain that, about the latter period, the king of Burma being engaged in a dispute with Arakan, and also, as the history of Pegu states, from discontent existing in the southern provinces, Rádzádirít thought he saw his opportunity to take revenge for the invasions of Meng kyi-tswá Tsau-ké. He assembled a large army, and a flotilla of boats to proceed by the Eráwati. There were four thousand boats of every description. The army moved partly by land and partly by water. The king himself left the city in the month Natdáu 766, A. D. 1404. He proceeded up the river, the army reached Prome, which was held for the king of Ava by Byan-khyi, one of the sons of Láuk Byá. The town was too strong to be attacked, and the king pushed on for the capital. By means of his large flotilla and army combined, he was able to invest the capital, but could make no impression on the walls. Rádzádirít had full command of all the country outside the city, and even sent a strong detachment up to Tagáung, the ancient capital. Probably he found himself in a difficulty and was glad to retire, but the history states that he did so in compliance with the representations of an eloquent Buddhist monk. He built a monastery at Shwé-kyet-yet, near Ava,

\* See History of Arakan, Jour. As. Soc. of Bengal, for 1844; and History of the Burma Race, Vol. XXXVIII, for 1869.



with materials obtained by breaking up some of his boats; but this was afterwards burnt by order of Meng Kháung. The king on his way down the river was much annoyed by the Burmese troops; and on reaching Tsalé, he heard that his daughter who had accompanied her husband on the expedition, had been taken prisoner. At first in his rage he determined to attack Prome, but his general Amát Din pointed out that the army was disordered and required rest. He, therefore, proceeded down to Pegu. Arrived at Dala, he put to death Tsáu-ma-shet, his son-in-law, who had fled when his daughter was captured. The king then returned to the city. But his anger had not subsided. No sooner was the rainy season at an end, than he gathered his forces, and advanced up the river. Determining to reduce Prome, he established his headquarters on the western bank of the river. Having defeated a Burmese force near the city, he posted three regiments on the ground to the north, on the Naweng River, in order to prevent any relief arriving. But the king of Ava was now marching down with a large army. Rádzádirít was urged by his general to withdraw the three detached regiments; but he was persuaded by others to let them remain intrenched where they were. They were attacked and utterly overwhelmed by king Meng Kháung, who then relieved Prome. But though the king of Ava was thus successful, the king of Pegu by means of his flotilla cut off his supplies by river, and destroyed the towns and villages on the banks as far as Magwé and Malun. Meng Kháung then proposed that they should make peace, and presents and friendly messages were exchanged. They swore friendship at the great pagoda of Prome, and the boundary of their kingdoms was fixed a little to the south of the city. Yet notwithstanding this agreement, the king of Ava took offence at a Taláing garrison being left at a post on the frontier, and before long began to take measures for disturbing Pegu. He desired to attack Arakan, and to prevent the king of Pegu from interfering, sent a letter to the king of Zimmé, requesting him to march an army to the frontier of Tsit-tiung. This letter was intercepted, and the bearers of it were put to death. The king also knowing that preparations were being made for a march into Arakan, sent an army to Pu-thin (Bassein), to be ready for whatever might be required. The Burmese army marched into Arakan, and the king of that country fled to Bengal.\* His son Na-ra-mit-hlá came south to Thandwé, and communicating with Rádzádirít crossed to Pu-thin. The king then promised to support him, and sent on his army to Thandwé. Ká-ma-rú, the son-in-law of Meng Kháung, had been appointed governor of Arakan, with the title of Anau-ra-htá. He was at the

\* This event is stated in the history of Arakan to have occurred in the reign of Meng-tsáu-mwun in the year 768, A. D. 1406. See History of Arakan, A. S. Bengal, for 1844.





capital in the northern part of the kingdom. The Taláing army marched there, the Arakanese Prince accompanying it. Kámarú fled from the capital, but he was taken prisoner with his wife and family, and sent to Bassein, where Rádzádirit still was. As his father-in-law had broken the treaty without cause, he was put to death, and his wife, the daughter of the king of Ava, was made one of the queens. Prince Na-ra-mit-hlá was placed on the throne of Arakan, and the Taláing army returned.

During these transactions Meng Kháung had been employed in putting down a rebellion among the Shans of Bamáu and other states. When he heard that his son-in-law and daughter were prisoners, he assembled an army, chiefly Shans from Kalé and Monyin, and moved on Pegu. He marched by the Ra-mé-then route, and thence down the valley of the Paung-láung. Rádzádirit collected an army to meet the enemy at the frontier of his kingdom. The Taláings met with a defeat, and were forced to abandon a fortified post at Tha-kyin, where they had much rice stored. Rádzádirit retreated to Pan-gyán. The Burmans as they advanced burnt all the villages, and the Taláings harassed the enemy by cutting off his foraging parties. When the seat of war reached the low country where the tides prevail, the Shans unaccustomed to them became bewildered, and a large body of them being inveigled on to a sand bank in the river, was suddenly overwhelmed in the rising water. This success, and reinforcements which reached Rádzádirit from Bassein, encouraged the Taláings, and the Shan army began to suffer from the want of supplies. King Meng Kháung, by the advice of his officers, thought it prudent to negotiate. He, therefore, wrote a letter adverting to his daughter being with Rádzádirit, and proposing that his son should marry a daughter of the latter. But the king of Pegu knew that the Burmese army was in distress, he therefore returned a rough answer. Several messages passed, and a personal meeting was agreed to. The king of Pegu had determined to seize his enemy, and Meng Kháung at the last moment, suspecting treachery, turned back. La-gwun-in, a Taláing officer, now undertook to capture the king of Burma. By a sudden night attack he penetrated to the tent of the king, and even possessed himself of the royal sword and pán box. Meng Kháung escaped by an accident, and now being thoroughly alarmed commenced a retreat. He was followed to the frontier by the Taláing army, after which Rádzádirit returned to his capital in triumph. But though thus successful, he deemed it expedient to enter into an alliance with the king of Ava. He, therefore, sent him a letter full of friendly words with presents, and asked for his sister in marriage. After some delay this was agreed to. The princess Wimála Devi went down the river in a royal boat, and was received by Rádzádirit at Ta-kun (Rangun), where the marriage was solemnized. But this alliance was of no avail to



preserve peace. Not long after, prince Thid-dát, brother of Meng Kháung, conspired against the king, and being discovered, fled to Pegu. There he was received with distinction, and he induced Rádzádirít to withhold an annual gift of thirty elephants, which he had promised to send to Ava. Meng Kháung, enraged at this breach of faith, determined at once to attack Pegu. In vain his ministers represented that the rainy season was at hand, and a campaign in Pegu hazardous. The king would brook no delay. Pushing on heedlessly at the head of a body of cavalry, he was suddenly attacked by the Talaing general, with whom was prince Thid-dát. The king of Ava was entirely defeated, and escaping from the field with difficulty, retreated to his own country. Rádzádirít, enraged that his enemy had eluded his grasp, for Thid-dát had promised to capture his brother, put the prince to death. The king of Ava made another attack after the rainy season of 767 (A. D. 1405), but it was unsuccessful. At this time it is stated that Rádzádirít had some Europeans in his service.

A more formidable invasion was now preparing than any yet hurled against Pegu. The army was placed under the command of the king's son, Meng-ré-kyav-tswá, who was now seventeen years of age. The story of the marvellous birth of this young prince is told without any doubt of its truth. At the time when Rádzádirít was employed in the Myoung-myá district against Láuk-byá, he suspected, as has already been mentioned, that his son Báú-láu-kwon-dáu, who was at the capital, was conspiring to usurp the throne. He caused him to be put to death. But the young prince was innocent, and in dying invoked the powers of nature, that he might be born again in a neighbouring kingdom, and revenge his unjust death on his father and his country. Transmigrating, he was born of one of the wives of Meng Kháung, and from marks indicating future greatness received the name of Meng-ré-kyáu-tswá.\* Now in the year 768,† he was appointed to command the invading force, which by land and water numbered twenty thousand men. The prince proceeded down the Eráwati and entered the Bassein District, where he captured a stockade which had lately been built at De-ba-thwé. At this time Rádzádirít was detained at Muttama, which was threatened with an attack by the Shans of Zimmé. The prince next attacked Myoung-mya, which was so well defended, that he was obliged to retire. He also failed against Bassein and Khé-báung. The following year he marched across the hills into Arakan. The king of that country, Naramit-hlá fled, and the prince ap-

\* The same story is told in the Burmese history. See Jour. A. Soc. Bengal, Vol. XXXVIII.

† Year 772, by the Burmese history.





pointed governors to Arakan\* and Thandwé, and then returned to Ava. The danger from the Shans of Zimmé having passed, Rádzádirít returned to his capital. As Naramit-hlá was the hereditary king of Arakan, the king of Pegu determined to restore him. He sent a force which occupied Thandwé. They then heard that the king of Arakan had fled to Dacca. The Burmese prince now returned with an army to retake Thandwé, but by a false report of a large army approaching, retired. Soon after, a relieving force did arrive from Muttama, and the commanders who had held Thandwé, pushed on to the capital of Arakan, which the Burmese governor abandoned and fled.

At this time Prome was held for the king of Ava by a son-in-law of Láuk-byá. Rádzádirít thought there was an opportunity to take the place, as the prince of Ava was engaged against the chief of Thein-mi. He advanced up the river in the month Nát-dáu, 774 (A. D. 1412), but was almost immediately recalled by news of Muttama being threatened by an attack from Siam. He at once returned with a part of his army, leaving his son Binya Pathin as Commander-in-Chief. That officer deemed it prudent to retire from Prome. He, therefore, stockaded himself at Tha-lé-tsi, on the west bank of the river. The king of Ava soon arrived with an army at Prome, and a month later Meng-ré-kyáu-tswá joined him. They made an attack by land and water on the fort at Tha-lé-tsi. But the Taláing garrison had firearms in abundance, and destroyed numbers of the enemy, and the rest were driven back in confusion. The Burmese king then blockaded the work. King Rádzádirít approached with an army, and it was agreed to have a fair fight between two war boats, one on either side. La-gwun-in commanded the boat on the Taláing side, but he was overcome and killed by a treacherous attack from four Burmese boats, under Meng-ré-kyau-tswá. After this, the king of Pegu commenced a retreat. The Burmese prince followed by water and attacked the Taláing flotilla near Tarukmáu. Both sides suffered severely, but Rádzádirít hastened the retreat of his army by land and water, and himself went on ahead with his body-guard. The Burmese army followed, and, entering the delta, successively occupied Dala, Ta-kun, Than-lyeng, and Mháu-bí. Rádzádirít entrenched himself at Kha-má-byín. For several months the two armies were engaged in various combats until the Taláing army gained a victory over Meng-ré-kyáu-tswá. The Burmese army then retreated.

In Arakan the Taláing commanders having heard that their king had suffered a defeat, evacuated that country, and brought their army to Bassein. Rádzádirít suspected that one or both of these officers had been bribed by the king of Ava. One of them was put to death, but the other

\* In the history of Arakan this event is recorded in the year 768.



was promoted. The king of Pegu now repaired the defences of his principal towns and cities.

When the rainy season had passed, a Burmese force once more came down by land and water. It consisted of not less than 100,000 men, 300 elephants, and 3000 horses. The king of Arakan who had been placed on the throne of that country by Meng Kháung, appeared as commander of one of the divisions. The Prince Meng-ré-kyáu-tswá, who was Commander-in-Chief, proceeded down the Bassein River and took Khá-báung by storm, in the month Tabodwé, 775 (A.D., 1413). The Taláings, however, determined to hold out in every place, and one of the king's sons had his head-quarters at Pan-go. Their superiority in boats enabled them to intercept the communications of the Burmese, and to cut off their supplies. The king of Taung-ú marched down with a force to create a diversion, but was met and checked on the frontier. The prince of Ava, though long inactive at Khé-báung, at length left it and proceeded towards Pan-go. The Taláings dared not attack him. He fought an action partly on land and water, and defeated the Taláing army, taking prisoner Tha-min pa-rán. The prince then proceeded to attack Bassein, but after losing many of his men, was obliged to retire. He proceeded next to Myoung-mya hoping to take it, but failed. He then went up to Ava taking with him many prisoners of importance, whom he presented to his father. He then married, and brought his wife Sheng-meng-hlá down to Pegu. He at once proceeded to attack Dala. He did not succeed, but the stars according to the astrologers were so adverse to Pegu, that Rádzádirit retired with all his family to Muttamá. The Burmese prince hearing that the Taláing general Amát-din had left Bassein, suddenly appeared before that city, the governor of which surrendered. Indians and Europeans are mentioned as being in the garrison. The prince then went to Myoung-mya, which also surrendered, and having built some decked boats proceeded to attack Than-lyeng. It was defended by Binyarán, a son of the king's, and the attack failed. The prince then returned to the entrenched position he had established not far from Dala, and closely invested the Taláing force there. At this time, the king of Ava was attacked by a Chinese army, and the dispute was settled by a duel between a Chinese champion and the Taláing officer Thaminparán who had been taken prisoner, as already related.\* Dala was gallantly defended by the Taláings, though they were starving. The king of Pegu recovering from his alarm returned to his capital and determined to relieve Dala. As he approached, the Burmese prince drew off his force, and the king sending a few men into the city, followed the prince's army. Several days of skirmishing occurred, and at length when the Burmese head-quarters were

\* See History of Burma, Jour. A. Soc. Bengal, Vol. XXXVIII. for 1869.





at Tsha-bé-tsha-kán, the prince prepared for battle. He gave his elephant three cups of spirit and drank some himself, then remarking to his wife that the cry of the *sarus* which he heard was a good omen, he went forth. In the battle which ensued, the prince received a mortal wound, and his army fled. Rádzádirít ordered that he should be buried with royal honours. The Burmese army now retired, and, on the retreat, the Prince's wife Sheng-meng-hlá was taken prisoner. It is said that king Meng Kháung himself came down to Dala and was shown the spot where his son's bones had been buried. He then had them put into a golden vase and sunk them at the mouth of the river. Again in the following year 776, (A. D. 1414) he came with an army, but though he defeated and took prisoner Binya Tsek, one of the king's sons, the expedition failed, and he returned to Ava. This was the last invasion of Pegu during the reign of Rádzádirít. Both nations were exhausted by the destructive wars they had waged. King Meng Kháung died five years later, and Rádzádirít devoted himself to religion and good works for the rest of his days. He opened communication with the king of Ceylon, whose daughter he married, and from whom he received a tooth relic which was enshrined in a pagoda 186 cubits high. He also repaired the Shwé máu-dáu pagoda, to which he gave a new hti. Though no longer active, he one day went out into the jungle to capture a wild elephant. When throwing the noose, he received a blow from the animal which broke his leg, and he died before he could be brought home. This was the end of Rá-dza-di-rít, in the year 783 (A. D. 1421).

No. 1.—*List of the kings of Suvarna Bhumi, or Tha-htun, from the native chronicles.*

- |                        |                               |
|------------------------|-------------------------------|
| 1 Thi-ha Rá-dzá. ....  | The first king. He died the   |
| 2 Thiri Dhammá Thauka. | year Gautama entered Nirvana, |
| 3 Titha.               | B. C. 543.                    |
| 4 Dhammá Pá-la.        |                               |
| 5 Dham-ma dhadza.      |                               |
| 6 Eng-gu-ra.           |                               |
| 7 Uba-de-wa Meng.      |                               |
| 8 Thí-wa-rít.          |                               |
| 9 Dzau-ta-kummá.       |                               |
| 10 Dham-má Thau-ka.    |                               |
| 11 Uttara.             |                               |
| 12 Ká-tha-wun.         |                               |
| 13 Mahá-thá-la.        |                               |
| 14 A-ra-ka.            |                               |
| 15 Na-ra-thú-ra.       |                               |
| 16 Ma-há-Bad-da-ra.    |                               |



- 17 A-da-ra.
- 18 An-gu-la.
- 19 U-run-na-ta.
- 20 Mahá Thuganda.
- 21 Thuganda Rádzá.
- 22 Brahmadát.
- 23 Manya Rádzá.
- 24 A-di-ka.
- 25 Ma-rá-di Rádzá.
- 26 Tha-du-ka.
- 27 Dham-ma bi-yá.
- 28 Thu-da-thá.
- 29 Dip-pa Rádzá.
- 30 A-thek-ka Rádzá.
- 31 Bhum-ma Rádzá.
- 32 Man-da Rádzá.
- 33 Ma-hing-tha Rádzá.
- 34 Dham-ma tsek-ka-ran.
- 35 Thu-tsan ba-di.
- 36 Bad-da-ra Rádzá.
- 37 Na-ra-thú Rádzá.
- 38 Tsam-bú-di-pa.
- 39 Ke-tha-rít Rádzá.
- 40 Wi-dza-ya Kum-má.
- 41 Ma-ni Rádzá.
- 42 Tek-ka meng
- 43 Ku-tha Rádzá.
- 44 Dip-pa Rádzá.
- 45 Na-ra Rádzá.
- 46 Rá-dzá Thúra.
- 47 Tsit-ta Rádzá.
- 48 Di-ga Rádzá.
- 49 Ut-ta-ma Rádzá.
- 50 Thi-ri Rádzá.
- 51 Dham-ma Rádzá.
- 52 Má-há Tsit-ta.
- 53 Gan-da Rádzá.
- 54 Dzé-ya Rádzá.
- 55 Thu-ma-na Rádzá.
- 56 Man-da-ka Rádzá.
- 57 A-min-na Rádzá.
- 58 U-din-na Rádzá.
- 59 Ma-nú-ha Meng.\*

\* Manúha (No. 59) was king of Tha-htun when the city was taken and destroyed by Anau-rahtá, king of Pugán, about the year A. D. 1050.





## No. 2.—List of the Kings of Pegu from the foundation of the city.

NAMES OR TITLES OF KINGS.	Commencement of reign.		Length of reign—years.	Relationship of each succeeding king.	REMARKS.
	Year of religion	A. D.			
1. Mahinn Thamala Kumúra, ...	1116	573	12	...	Came from Thahtun to build the city of Pegu.
2. Wimala, ...	...	585	7	Brother.	
3. Kathá Kum-má, ...	...	592	7	Nephew.	
4. Mahinn Ariinda Rádzá, ...	...	599	7	Son.	Relationship not stated.
5. Mahintha Rádzá, ...	...	606	17	Son.	
6. Geinda Rádzá, ...	...	623	12	Brother.	
7. Mahinn Mig-ga dib-ba Rádzá, ...	...	635	15	Son.	Ditto ditto.
8. Gite-tsa-wi-ya, ...	...	650	10	Son.	
9. Kara-wi-ka Rádzá, ...	...	660	12	Son.	
10. Tsa-da-la Rádzá, ...	...	672	13	...	Usurper.
11. At-ta-thá Rádzá, ...	...	685	15	...	
12. Anuma Rádzá, ...	...	700	12	Son.	
13. Mahinn Mig-ga-dib-ba ngé, ...	...	712	10	...	Relationship not stated.
14. Mahinn Egga Thamanda Rádzá, ...	...	722	12	Brother.	
15. Uba-ma-la Rádzá, ...	...	734	12	Son.	
16. Pun-na-ri-ka Rádzá, ...	...	746	15	...	From this time a blank of about five hundred years occurs in the annals of Pegu, during which the names of no native kings are entered. The two last kings in this list probably represent two periods, the religious ascendancy, or religious strife, of Brahmanists and Budhists, extending over about three hundred years. The close of Tiba's reign would then synchronize with the conquest of Pegu and Thahtun by Anaurahtá about A. D. 1050, when Pegu became subject to Burma for about two hundred and thirty years.
17. Thamin Tik-tha, Tiba, or Tissa Rádzá, ...	...	761	20	Son.	

(To be continued.)



*Postscript to Bábu RA'JENDRALA'LA MITRA'S Paper on Spirituous Drinks in Ancient India.*

It has been stated on page 7, that a "fatted calf" was once slaughtered for the entertainment of Ráma, but no notice has been met with of his having been offered any liquor. I find, however, that he was not averse to drinking. The following extract from the last book of the Rámáyana shows that he and his exemplary wife, Sítá, were as much given to drinking as other people of their time. The passage runs thus: 'Embracing Sítá with both his hands, Kákutstha (Ráma) made her drink pure Maireya wine, even as Indra makes Sachí partake of nectar. Servants quickly served flesh-meat variously cooked, and fruits of different kinds for the use of Ráma. Hosts of Apsaras, proficient in singing and dancing, and accomplished and handsome damsels, exhilarated with wine, danced and sang for the entertainment of Ráma and Sítá.' It is said that it was the usual every-day practice of Ráma, to devote his evenings to this feasting and musical entertainment as a fitting sequel to his onerous regal duties of the forenoon.

\* सीतामादाय बाहुभ्यां मधु मैरेयकं शुचि ।  
 पाययामास काकुत्स्थः शचीमिन्द्रो यथामृतं ॥ २१ ॥  
 मांसानि च सुसृष्टानि विविधानि फलानि च ।  
 रुमस्याभ्यवहारार्थं किङ्करास्तर्जमाहरन् ॥ २२ ॥  
 अप्सरोगणसङ्घाश्च नृत्यगीतविशारदाः ।  
 दक्षिणारूपवत्यश्च स्त्रियः पानवशं गताः ॥ २३ ॥  
 उपानृत्यन्त रामस्य सीताया हर्षवर्द्धनाः ।

On page 11 the word "reference" at the end of line 1 should be read "references," and "won over over" at the beginning of line 28, should be "won over." On page 13, "especially" at the beginning of line 14, should be "especial."



*Essays in aid of a Comparative Grammar of the Gaurian Languages.*—By  
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(Continued from Journal for 1872, Pt. I, p. 174.)

#### Essay IV.

##### *On the Inflexional base.*

In the third essay I attempted to collect all the facts and phenomena presented by the various Gaurian languages in regard to their inflexional base. These facts were analysed and some general principles deduced from them. Two of these general principles require a more special consideration; and this will be the subject of the present essay. It has been shown in the 3rd essay, that the inflexional base may (under certain circumstances) assume a two-fold form; viz. a *direct* form and an *oblique* form. One of the two general principles is closely connected with the *direct* form, the other with the *oblique* form.

One result of the previous enquiry has been to show that the inflexional bases of the Gaurian languages are divided into two great classes according as they admit or do not admit an *oblique form*, and accordingly they were divided into 1., the Prākritic, and 2., the Gaurian (including Gaurian proper and Sanskritic) nouns, i. e., into those which have retained traces of the Prākrit *organic* declension, and those which have emancipated themselves of it altogether. This conclusion, however, was mainly dependent upon the truth of the identity of the *oblique form with the organic genitive of the Prākrit*. This principle I shall try to establish now.

Another result of the previous enquiry has been to show that while some inflexional bases retain in their *direct form* the original Prākrit termination *अ*, others reduce it to *उ* or *अ*. This difference was explained by the theory that the former are derived from a *particular* Prākrit base ending in *अक* (or *इक*), while the latter are derived from the *general* base in *अ*. The truth of this principle will be the second point I shall endeavour to establish. But the facts upon which the proof of both, this and the other principle, depends, are so closely intertwined, that it will not be possible to keep both enquiries altogether distinct.

It is a well known fact, that in Sanskrit the genitive is not uncommonly substituted for the dative, though it possesses an *organic* dative; (cf. Pāṇini 2, 3. 5., M. Williams's Sanskrit Grammar §, 816, A. p. 353). In Prākrit this rule has become absolute (see Cowell's Prākrit Prakāsa VI. 64.); and necessarily so; for it has lost the *organic* dative altogether; and not possessing one, it is obliged either to paraphrase it (by postpositions, e. g.,



प्रति, छते, अर्थे, etc.), or to substitute (according to the precedent of Sanskrit) the genitive. The latter is on the whole the more common course.\* The Gaurian languages which have received their grammatical system from the Prākṛit (or, at all events, not from the Sanskrit), it is manifest, cannot possess an organic dative; and, it is more than probable, a priori, that what passes in them for the dative is (according to the precedent of Prākṛit) either a paraphrase of the dative or a substituted (organic) genitive. The former course, viz. to paraphrase the dative by postpositions, as is well known, has become the almost universal rule in the Gaurian.† The only exception (barring isolated instances in other languages) is in the Marāṭhī. This language possesses by the side of the ordinary paraphrastic datives (formed with the postpositions ला, प्रत, जबल, करिता, etc., cf. Manual, pp. 17, 18,) a form of the dative ending in स which has all the appearance of being an *organic* case-form; e. g., dative of देव God is देवास (besides देवाला, etc.); of कवि poet it is कवीस (besides कवीला, etc.); of गुरु it is गुरुस (besides गुरुला, etc.). This dative in स is generally admitted (cf. Manual, pp. 132, 133), and can easily be shown to be nothing but the *organic genitive* of the Prākṛit. For the genitive of देव, कवि and गुरु in Prākṛit is देवस्स, कविस्स, गुरुस्स (cf. Prāk. Prak. V. 8, 15). Now I have already explained in the 2nd Essay that in the later Prākṛit and in Gaurian, one of two similar compounded consonants is elided and the preceding vowel lengthened (see Prāk. Prak. III, 58.).\* Accordingly the genitive of the pronoun जो (base ज) in Prākṛit is masc. जस्स or जास, fem. जस्सा or जामे (or जाए); of the fem. base जि the gen. is जिस्सा or जीमे (or जीए); see Prāk. Prak. VI. 6, 6.‡ According to the

\* Examples from the Sakuntalā :

का तुमं विसज्जिदब्बस्स रुन्धिब्बस्स वा ॥ i. e.

Skr. का त्वं विसृज्याय रोद्धव्याय वा ॥

Or. अणुजाणाहि षो उडअगमणस्स ॥ i. e.

अनुजानाहि न उटजगमनाय ॥

From the Uttara Rāmācharita :

णमो तपोधणाणं णमो रउल्लदेवदाणं ॥ i. e.

Skr. नमः तपोधनेभ्यः नमो रघुकुलदेवताभ्यः ॥

Or. अहिचदरं सम महाराजो कुविस्सुदि ॥ i. e.

Skr. अधिकतरं सद्यं महाराजः कोपिष्यति ॥

† The regular process of glottic development from Sanskrit to Gaurian is here, worth noting; the dative is expressed in the

Sanskrit by the dative or genitive;

Prākṛit by the — genitive, or paraphrase;

Gaurian by the ——— paraphrase.

‡ The same is the case with the Māgadhī Prākṛit genitive in आह; e. g.,

Skr. पुरुषस्य is in M. Prāk. पुलिशह. Here ह is the modification of an original स, so that पुलिशह stands for पुलिशस and this for पुलिशस्स, just as देवास for देवस्स which in M. Prāk. would be देवाह (cf. Pr. Prak, XI, 12.)



analogy of the pronominal forms जास for जस्स, जोसे for जिस्सा, the Prākṛit genitives देवस्स, कविस्स, गुरुस्स, etc., become in the Gaurian देवास, कवीस, गुरुस, etc., i. e., the forms which we see in the Marāṭhī. The original genitive character of the Marāṭhī dative in स is further proved by the dative formed by means of the so-called postposition साठी; e. g., देव has a dative देवसाठी besides देवास or देवा ला; or कवि has कवीसाठी beside कवीस or कवीला; गुरु has गुरुसाठी beside गुरुस and गुरुला. These forms (as देवसाठी, कवीसाठी, गुरुसाठी, etc.) have always been derived thus; देवा (base) + साठी (postposition), कवी + साठी, गुरु + साठी under the mistaken notion, that as देवा, कवी, गुरु, etc. are the bases in all the other cases (e. g., instr. देवा + ने, dative देवा + ला, abl. देवा + हून, etc.), the same base must be contained also in the forms देवसाठी, etc. But it has never been shown what the meaning and derivation of the word साठी might be. The truth is, that साठी is no word at all; and that the forms देवसाठी, etc., have been wrongly divided. They ought to be separated thus; देवास (base) and अठी postposition, कवीस + अठी, गुरुस + अठी, etc. The postposition अठी is the Prākṛit and Gaurian equivalent of the Sanskrit अर्थे which, however, in the Gaurian may also be modified to आयो and hence the Marāṭhī has beside देवास + अठी also देवा + आयो (compare Skr. स्थाने which becomes in Mar. and Beng. ठाई, in Hindi and Panj. तह). Hence देवसाठी, i. e. देवास अठी) stands for Skr. देवस्य अर्थे or Prak. देवस्स अठन्नि; again कवीस अठी = Prak. कविस्स अठन्नि = Skr. कवेर् अर्थे; again गुरुस अठी = Prak. गुरुस्स अठन्नि, Skr. गुरोर् अर्थे.

So far then it is plain that the Marāṭhī dative ending in स is in reality the *organic genitive* of the Prākṛit.\* Now in old Marāṭhī poetry another dative form has been preserved which ends in आ, e. g., ईश्वर God, dative ईश्वरा (see Manual, p. 138). There can be no doubt that this form in आ is but a further modification or corruption of the more original and more perfect form in स; that, e. g., ईश्वरा is a curtailment of ईश्वरास. It may have arisen thus; in the Gaurian a final short vowel is not pronounced, so that the

\* In the oldest Hindi of Chand Bardāi instances of this *organic genitive* in स, which in the modern Marāṭhī only occurs in the sense of the dative, are still found with their original Gen. sense; e. g.,

तास राज समीप ।

Or. रति करन क्रीलनह राज याह ।

रहो नट बिदुया उचारं ॥

न न हंस धीर न न सुख ताह ॥

i. e. Skr. तस्य राजः समीपे etc.

Skr. नहि मन धीरं नहि सुखं तस्य ॥ etc.

Sasivrittā Kathā XXV. 16.

Ibid. XXV. 36.

Or. सोमवंस जइव वपति ।

Or. ता पइ सु पाव अनेक गुन ।

देवगिर जसि जीस ॥

रइ सु तहां निमि दीह पर ॥

Skr. देवगिरिर् यशो यस्य etc. Skr. तस्य मृदे कन्या अनेकगुणवती etc.

Ibid. XXV. 15.

Ibid. XXV. 16.



consonant which precedes it, is virtually the final of the word; now most probably the consonant स of the dative first changed to ह (a change, which is supported by the Mágadhí Prákrit genitive in आह, see note on page 60 and Prák. Prak. XI. 12.), and then the ह becoming the virtual final sound of the word was dropped; thus ईश्वरास become first ईश्वराह (or virtually ईश्वराह्) and finally ईश्वरा. Any one by pronouncing both ईश्वराह् and ईश्वरा, may see how easily one passes into the other. It follows thus, that the dative form in आ, being merely a modification of the fuller dative form in आस, is also really the *organic genitive* of the Prákrit.

Now this genitive form in आ which has been preserved in the dative of the old Maráthí, has been lost in modern Maráthí, but it is preserved in the latter as well as in the former as the *inflexional base of all cases formed by post-positions*, e. g. देव, "God," has old and modern dative देवास, old dative देवा, (old and modern) instr. देवा ने, dative देवा ला, abl. देवा हून, genitive देवा चा. So far then it is proved, that the *oblique form* in आ of the inflexional base of Maráthí nouns in अ is identical with the *organic genitive* of the Prákrit. But further it is manifest that as the nature of the Maráthí dative form in ईस and उस (e. g., कवीस, गुरुस) is identical with that of the dative form in आस (e. g., देवास), so the nature of the *oblique forms* in ई and उ (of the inflexional base of Maráthí nouns in इ and उ, as कवी चा gen. of कवि, गुरु चा gen. of गुरु) must be identical with that of the *oblique form* in आ of the inflexional base of nouns in अ; and in the same manner as the form in आ arose from that in आस, so the form in ई and उ must have arisen from those in ईस and उस. It follows, therefore, that the *oblique forms* in ई and उ of the inflexional base of Maráthí nouns in इ and उ are *identical* with the *organic genitive* of the Prákrit; that is, that, e. g., the *oblique form* कवी of the noun कवि is identical with the Prák. genitive कविस्स and गुरु with गुरुस्स, etc.

If, as has been now shown, the *oblique form* of the inflexional base of all nouns in अ, इ, and उ (i. e., by far the greatest part of the whole number of nouns) is identical with the Prákrit genitives, this fact raises the presumption that the *oblique form* of all remaining inflexional bases will be of the same nature. We will now take the different kinds of *oblique forms* of inflexional bases in Maráthí and afterwards in the other Gaurian languages one by one and show that that is really the case.

a. The inflexional base of all Maráthí nouns (masc. fem. and neut.) in इ and उ, and of all Mar. nouns (masc. and neut.) in अ has an *oblique form*, respectively, in ई and उ and आ. These, as has been already proved, are Prákrit genitives.

b. The inflexional base of *feminine* nouns in अ, has an *oblique form* either in ई or in ए. Those nouns which have an *oblique form* in ई, are, as I have shown in Essay III., really feminine nouns in इ. They belong,



therefore, to the former class, and their *oblique form* in ई is a *Prákrit genitive*. Those nouns which have an *oblique form* in ए are, as has also been shown in Essay III, really *Prákrit* feminine nouns in आ. The *Prákrit* genitive of these nouns ends in आए, which in Gaurian might become अए (the final आ being reduced to अ as in the Nom. and Acc. cases), and this, finally, is contracted by regular Sandhi (cf. *Prák. Prak.* IV. 1.) into ए; e. g., जीभ *tongue* has gen. जीभे; in *Prákrit* it is जीभा (or जीहा = Skr. जिह्वा, cf. *Prák. Prak.* I. 17, III. 54); Gen. जीभाए, in Gaurian जीभए, contracted जीभे (as in Bangálí बाघ + एर = बाघेर, Gen. of बाघ tiger).

c. All Maráthí nouns ending in consonants (masc. fem. or neut.) are treated as ending in अ, and hence the *oblique forms* of their inflexional bases end either in आ or in ई or in ए, and are, therefore, *Prákrit* genitives formed according to the analogy of the real nouns in अ. All these nouns in consonants are either Sanskritic or foreign; but never derived from the *Prákrit*, as no *Prákrit* word may end in a consonant, see *Pr. Prak.* IV. 6—II. 18. Their treatment has been explained in Essay III.

d. The inflexional bases of Maráthí nouns (masc. or fem.) in ई, ऊ, ए, ऐ, ओ, औ, and neuter nouns in ऊ have no *oblique form* at all. As regards the few exceptional masc. nouns in ई and ऊ and neuter nouns in ऊँ, see the next paragraph.

e. There remain the masc. nouns in आ to which correspond fem. nouns in ई and the neuter nouns in ऐ; the masc. nouns in ई to which correspond fem. nouns in ई and the neuter nouns in ईँ; and the masc. nouns in ऊ to which correspond the fem. nouns in ऊ and the neuter nouns in ऊँ. The inflexional base of the first two kinds of nouns has an *oblique form* in आ (masc. and neuter) and in ऐ (fem.). The inflexional base of the third kind has an *oblique form* in वा (masc. and neuter) and वे (fem.). The explanation of these *oblique forms* is more complicated. They are, as I shall show, the organic genitives of *Prákrit* nouns formed by the affix क (masc. and neuter,) and का (fem.). It will be necessary to dispose first of the latter question; viz. the presence in the Gaurian languages of a class of nouns which are descended from *Prákrit* nouns formed by the peculiar *Prákrit* affix क (cf. *Pr. Prak.* IV, 25.) Here I will only draw attention to an important coincidence. Masculine and neuter nouns in अ have (as has been shown) an *oblique form* in आ (being the corruption of the *Prákrit* genitive in अस्स). Their corresponding fem. nouns in अ have an *oblique form* in ए (being a corruption of their *Prákrit* genitive in आए). Similarly we have here masc. and neuter *oblique forms* in वा and वे and their corresponding feminines in ऐ and वे. The conclusion may be drawn that the masc. nouns in आ and ई and the neuter nouns in ई and ईँ which yield the *oblique form* in आ, were originally masc. and neuter nouns in य or यं = रय or रयं = रक or रक; and that their *oblique form* in आ is a cor-





ruption of a Prákrit genitive in यस्स (=इयस्स=इकस्स). Again, that the feminine nouns in ई which correspond to the masc. nouns in आ and ई and to the neuter nouns in ए and ई, and which yield the *oblique form* in ये, were originally feminine nouns in या=इया=इका; and that their *oblique form* in ये is a corruption of a Prákrit genitive in यार=इया=इकार. Similarly it may be concluded that the masc. nouns in ऊ and neuter nouns in ऊ which yield the *oblique form* in वा, were originally masc. and neuter nouns in व or वं, *i. e.*, in उव or उवं=उक or उकं; and that their *oblique form* in वा is a corruption of a Prákrit Genitive in वस्स=उवस्स=उकस्स; and again that the feminine nouns in ऊ which correspond to the masc. nouns in ऊ and neuter nouns in ऊ, and which yield the *oblique form* in वे, were originally fem. nouns in वा, *i. e.*, in उवा=उका; and that their *oblique form* in वे is a corruption of a Prákrit genitive in वार=उवार=उकार. As regards the *oblique form* in ए or आ of the inflexional base of certain nouns in the Hindí-class Gaurian languages, their case is exactly like that of the last mentioned class of Maráthi words. The two classes of nouns correspond to each other in the two classes of Gaurian languages, *e. g.*, Hindí घोड़ा *horse*, obl. घोड़े, is in Maráthi घोड़ा, obl. घोड्या. And their *oblique forms* must therefore have the same nature, and must admit of the same explanation; *viz.* that they are the organic genitive of particular Prákrit bases formed by the affix क (*i. e.*, ending in चक).

The evidences showing that there is in Gaurian a class of nouns, which are derived from Prákrit bases formed by means of the peculiar, *pleonastic* affix क, are the following. In the first place, it may be remarked, that all Sanskrit words which have a base in चक (*i. e.*, formed by the affix क) and have passed into the Gaurian through the Prákrit, terminate in the Gaurian in चो(चौ) or चा, and not in च or उ; *e. g.*, *horse* is Skr. घोटक, nom. sing. घोटकः, Prák. घोडको or घोडचो, Gaurian घोड़ो or घोड़ा;—Skr. कटक: *stiff*, Pr. कडाको or कडचो, Gaurian कड़ो or कड़ा;—Skr. चम्पक: the *champak tree*, Prák. चंपका or चंपचो, Gaurian चंपो or चंपा;—Skr. पालक: *keeper*, Prák. वालचो, Gaurian वालो or वाला (an affix);—Skr. धारक: *holder*, Pr. धारचो or हारचो, Gaurian हारो or हारा (an affix).—There are only a small number of nouns of this kind. But on the other hand all Sanskrit nouns, the base of which ends in च only, and which have passed into the Gaurian through the Prákrit, terminate in the Gaurian either in चो (चा) or in च (उ), evidently according as they did or did not assume, in their passage through Prákrit, the affix क; *e. g.*, *sweet* in Gaurian (Hindí) is both मीठ and मीठा; both represent the Skr. मिष्टः; but Skr. मिष्टः may be represented in the Prák. by मिष्टो (*i. e.*, मिष्टः) and by मिष्टचो (*i. e.*, मिष्टकः); now Prák. मिष्टो becomes the Gaurian मीठ, and Prák. मिष्टचो becomes the Gaurian मीठा (मीठा). Again *heat* is in Skr. धर्मः, and *pot* घटः, both having bases in च. In Prák. they may assume the forms वस्मा or वस्मचो and घडो



or घडया. But of the former pair the form घमो became the usual one while of the latter pair घडयो was the usual one. Accordingly we find in the Gaurian *heat* to be घाम, but *pot* to be घडो or घडा. These examples might be multiplied indefinitely.

Next, Sanskrit *masculine* nouns which have a base in अ exhibit in the Gaurian a two-fold termination. They either end in यो (यौ, या) or in अ (उ). But a very analogous phenomenon may be observed in Sanskrit neuter nouns in अ, with nom. sing. in अम्. They exhibit in the Gaurian a twofold termination ending either in अ or in यौ, ऊँ, ऐँ, ईँ; e. g., Skr. गृहम् *house* = Gaur. घर; but Skr. कृतम् *done* = Gaur. केल (Mar.) or कीनौ or कियौ (Br. Bh.) or कीनू (Alw.); and Skr. मैत्रिकम् *pearl* Gaur. मोती (Mar.). Sometimes both forms occur in the same word as Skr. कदरम् *plantain* = Gaur. केल or केलें, and Skr. नारिकेलम् *cocoanut* = Gaur. नारल or नारली (Mar.). But observe the difference. The nom. sing. of those *masc.* nouns ends in Skr. in अः; this turns in Prākṛit into यो; and this again, in Gaurian, is either retained unchanged यो or reduced to अ(उ). All this is intelligible; from अः (= अम्) to यो to अ, there is a direct progress of phonetic corruption, consistent with the glottic laws regulating the development of younger languages from an older one. But now in the other case; the nom. sing. of *neuter* nouns in Skr. is अं (= अम्) which remains in Prākṛit अं or becomes simply अ; in Gaurian the Prākṛit अं or अ is either reduced to (resp. remains) अ or is raised to यौ, ऊँ, ऐँ, ईँ.\* Now this is contrary to all principles of glottic development. By whatever other means languages may increase and reconstruct themselves; *phonetically* they disintegrate and *decrease* as they advance. The simple Prākṛit termination अ or अं can never by itself have been raised or increased to यौ or ऊँ or ऐँ or ईँ. This is utterly inconceivable, nor will any reference to the accent help us here out of the difficulty. The accent might explain the absence of phonetic disintegration, where its presence would be expected, as, e. g., that the Prākṛit termination यो remains in the Gaurian, in some cases, यो, instead of being reduced to अ; (though even in this case, as I have shown in Essay III, the explanation by the help of the accent is quite inadequate); but it is quite unable to explain the presence of a phonetic increase which is contrary to glottic laws, according to which either phonetic disintegration or at least no change at all ought to have taken place. It

\* E. g. Skr. गृहं, = Prāk. घरं or घर, = Gaur. घर. But Skr. कृतं, = Pr. कड or कडं, = Gaur. (Mar.) केलें; or Skr. कृतं, = Pr. कियं or कियं, = Gaur. (Br. B.) कियौ; or Skr. मैत्रिकं = Prāk. मैत्रियं = Gaur. (Mar.) मोती. Or in the same word Skr. कदरं, = Pr. केरं or केर, = Gaur. केल or केलें (Mar.) or केला (H. Hindi); and Skr. नारिकेलं, = Pr. नारिएलं or नारिएल, = Gaur. (Mar.) नारल or नारली. In this last case it is especially obvious that the same Skr. or Prāk. form could not have been the immediate source of the two widely different Gaurian forms.



is evident the Gaurian neuter forms in  $\text{कै}$ ,  $\text{ऊ}$ ,  $\text{ऐ}$ ,  $\text{ई}$ , must be susceptible of such an explanation as accounts for the phonetic increase without shutting out the possibility of phonetic disintegration in these same forms.

I think a clue to the right interpretation of these neuters in  $\text{कै}$  (Hindī Br. Bh.),  $\text{कै}$  (Hindī Śūra Dāsa),  $\text{ऊ}$  (Hindī, Alw., and Marāṭhī),  $\text{ऊ}$  (Gujarātī and Naipālī);  $\text{ऐ}$  (Marāṭhī);  $\text{ई}$  (Marāṭhī) is given us by the Gaurian infinitives. Let us take, for example, the infinitive *to do* or *doing*. It is in the Low Hindī dialect of the Braj  $\text{करनै}$ , of Alwar  $\text{करनू}$ , of Śūra Dāsa  $\text{करनै}$ ; in Marāṭhī  $\text{करणे}$ , in Naipālī  $\text{करनु}$  (or  $\text{करनुं}$ ?). The common opinion, I believe, is that all these forms are verbal nouns formed by the Sanskrit affix  $\text{ञन}$ , and that their original is the Sanskrit and Prākṛit form  $\text{करण}$ .\* This, as has been shown in the preceding paragraph, is impossible, because it contradicts the glottic laws. Their origin must be a different one. In Marāṭhī the meaning of the infinitive is only one out of many, and that a subordinate one, of  $\text{करणे}$  and all words of this class. To express the infinitive it has a proper form in  $\text{ऊ}$ , connected with, though not derived from, the Sanskrit infinitive in  $\text{तु}$ . The proximate and principal meaning of  $\text{करणे}$  in Marāṭhī is that of the *Latin* gerund. But Marāṭhī possesses two forms of the gerund, one in  $\text{णे}$  and another in  $\text{वे}$ ; besides  $\text{करणे}$  it has also the form  $\text{करावे}$ ; e. g., *incitement to act* is  $\text{करण्या ची प्रेरणा}$  and  $\text{करावया ची प्रेरणा}$ . Now if we turn to the Prākṛit and Sanskrit we find the origin of these forms. We meet with two Sanskrit affixes forming gerunds, or part. fut. pass., of which latter the gerund is merely a particular usage; *viz.*  $\text{अनीय}$  and  $\text{तव्य}$ . In Prākṛit these become  $\text{अणीय}$  or  $\text{अणिव्व}$  and  $\text{तव्व}$  (see Pr. Prāk. II, 17. VII, 33.). Now it can easily be shown that these affixes will account for the two alternative forms of the gerund in Marāṭhī. The common Prākṛit *prose* representative of the Sanskrit root  $\text{कृ}$  is  $\text{कर}$  (see Pr. Prāk. XII, 15.). Of this root we obtain with the affix  $\text{अणीय}$  the gerund  $\text{करणीय}$  (= Skr.  $\text{करणीय}$ ), and with the affix  $\text{तव्य}$ , the form  $\text{करितव्य}$  which is the more polished form (enjoined by the Pr. Prāk. VII, 83.), or  $\text{करतव्य}$  (= Skr.  $\text{कर्तव्य}$ ) which was probably the *vulgar* form of it. In either form ( $\text{करितव्य}$  or  $\text{करतव्य}$ ) the medial  $\text{त्}$  would become elided (according to the ordinary rules of Prākṛit), thus making  $\text{कणिव्व}$  or  $\text{करव्व}$  (the forms given by Pr. Prāk. VII, 33.). Next these forms become contracted by sandhi to  $\text{करव्व}$ ,† and finally one of the two  $\text{व}$ 's is elided (according to the Gaurian law explained in Essay II.), and the preceding short  $\text{अ}$  lengthened; thus we obtain the form

\* Bopp (Comp. Grammar § 875) adopts this opinion but with much hesitation.

† Cowell in his Pr. Grammar, p. 68, gives from one MS. the form  $\text{हसिव्व}$  or  $\text{हसेव्व}$ . If these are at all trustworthy, the analogous forms  $\text{करिव्व}$  or  $\text{करेव्व}$  exhibit a form very nearly identical with the present Marāṭhī form  $\text{करावे}$  and altogether identical with the Braj Bhāshā gerund  $\text{करिवौ}$ , on which more will be said further on.



कराय which is manifestly the base from which the Maráthí करावे is derived. Next take the alternative form करणीञ्च. The nom. sing. neuter of it is करणीञ्च. Vararuchi's sūtra Pr. Prák. I, 18 shows that Prákrit has a tendency to shorten the vowel ई in such final syllables as ईञ्च (= ईय or ईक), etc. The following examples are there given; Skr. पानीयं = Pr. पाणिञ्च; Skr. द्वितीयं = Pr. दुदञ्च; Skr. तृतीयं = Pr. तदञ्च; Skr. अलीकं = Pr. अलिञ्च, etc. We may well assume that in the vernacular Prákrit these vulgar forms, of which only a very few were admitted into the literary Prákrit, were much more general and regular; especially in the gerunds formed by the affix अनोय. Accordingly we may conclude that the nom. sing. neuter करणीञ्च became करणिञ्च or (with insertion of euphonic य्) करणियं.\* Finally करणियं (or करणिञ्च) becomes in Gaurian contracted to करणे. For ए is an extremely common substitute for any of the combinations इञ्च, इय, ईय, या, अय, both in Prákrit and Gaurian.† E. g. the syllable अय contained in all causal verbs becomes in Prákrit ए, as कारेदि or कारेद for Skr. कारयति, etc. Again the Skr. कियन् and इयन् become in Prákrit केत् + इक (properly कियन्त् + इक) and एत् + इक (= इयन्त् + इक). Again in Gaurian (old Hindi) the Skr. Part. Past Act. affix इतवान्, which in Prákrit becomes इच्चवन्तो or इच्चञ्,‡ becomes एउ; as Skr. कथितवान्, Pr. कहिच्चवन्तो or कहिच्चञ्, Hindi कहैउ (in old Hindi of Chand Bardái कहैव). Again in low Hindi the Braj Bhāshā याकौ of him, याकौ to him, यामे in him, corresponds to the Ganwāri एकर, एको, एमे, etc. Again in Bangālī, in common conversation, a final or medial इया is contracted into ए (see Forbes' Bengali Gram. App. A. 4. p. 160. Shamachurn Sircar's Bengali Gram. p. 149, note 45.); e. g., धरिया becomes धरे, करनिया becomes करने. We shall meet with some more examples of this favorite contraction in the course of this Essay.§ Now the genitive of

\* An example of this form we have perhaps in the following verse of Chand;

कर मोहि पञ्चव भानियं ॥

चञ्चवान तो घरे हानियं ॥ Pr. Raj.

† i. e. The cutting of the finger of my hand will be the destruction of thy house, oh Chahuván. The same form we have probably in the Bangālī nouns of agency in अनिया. (cf. Shamachurn's Grammar, p. 149.); e. g., करनिया a deer = Naipālī करन्या = Hindi करने का or करनेवाला.

‡ By analogy, ओ is a substitution for the combinations उव, उया, वा, अव as Braj Bhāshā वाकौ = Ganwāri ओकर; Bangālī पटुवा in common conversation = पटो; cf. Skr. सुवर्णः = Pr. सुवखो, Gaur. सोना. But व is, as a rule, substituted by उ, as उच्यते for वच्यते; and य by इ; e. g. in old and low Hindi he is both यह and रह.

§ Of the change of the termination वान् into क्क in Prákrit, I have found one example, in Mricchhakatī Act IV. p. 119, कुदोदे एत्तिक विह्वो = Skr. कुतस्ते एतावान् विभवः.

§ Another example we have in Pāli and Prákrit. In Pāli the affix of the Instr. Abl., Dat. and Gen. of feminine nouns is या (or य). The corresponding affix in



the Prākṛit base करणीञ्च would be करणीञ्स. This form करणीञ्स, according to the process already explained, would successively change to करणीञ्चस्—करणीञ्चा or करणीञ्चस्—करणीञ्चस् which last form is identical with the *oblique form* of the Marāṭhī करणे.

Then as regards the low Hindī forms for the Marāṭhī करणे; viz., करनो, करनू; the way how they are derived from the original Skr. करणीञ्च or Prāk. करणीञ्च is, probably, this. It does not seem probable that the sounds चो, चो, ऊ, are merely modifications of ए; at least I am not aware of any example of such a change of a terminal ए to चो or चो or ऊ. But we have seen on the previous page how the Prākṛit form करणीञ्च would colloquially change into करणीञ्च. Now there are many instances which prove that for the vowel इ of the polished Prākṛit the *vulgar* Prākṛit dialects substituted the *brouder* अ; e. g., in Marāṭhī we have as the termination of the past part. pass. the affix अल (as सुटला *got loose*) which stands for the Prākṛit इञ्च or इत (see Pr. Prāk. VII, 32); above we had the vulgar form करञ्चस् for the more polished form करिञ्चस्. Thus it is probable that instead of करणीञ्च the vulgar dialect pronounced करणञ्च or, with the euphonic य, करणयञ्च. And finally करणयञ्च would become naturally contracted to करनो, of which करनो or करनू are merely dialectic variations. The first personal pronoun in the low Hindī of Braj हैँ ego (Alwarī and High Hindī हैं) affords a very good illustration of this change of the terminal अञ्च to चो. Its equivalent in Sanskrit is अहम् which in Prākṛit becomes हं or हञ्च (cf. Pr. Prāk. VII, 40.). Now the form हं could not have yielded the Gaurian form हैँ; it could only have given ह, just as घरं *house* gives घर, but not घरौ. Hence the original of हैँ must be the other form हञ्च, and this violates no glottic law.\* It may, therefore, be accepted as a law that the

Prākṛit is ए; e. g., Pāli कन्याय *by, from, to, of a virgin*, but in Prākṛit कन्याए; Pāli नदिया, Prāk. नदिए; Pāli वधुया = Prāk. वधुए. The Pāli is here nearer to the Skr., where these forms would be respectively (genitive) कन्यायाः, नद्याः, वध्वाः. Similarly in the causal where the syllable अय is always contracted to ए in Prākṛit, but only *optionally* in Pāli; e. g., Skr. कारयति = Pāli कारयति or क रेति = Prāk. कारेदि or कारेद. These and many other examples, especially the treatment of the medial consonants, prove that *phonetically* Pāli occupies an intermediate position between Sanskrit and Prākṛit.

See Dr. Mason's Pāli Grammar, p. 105 and p. 61. 37.

\* It should be observed also, that the Prākṛit form हञ्च stands for an original form हकं (i. e., base ह + affix क). This is proved by the Māgadhi Prākṛit form of ego हके or हगे (cf. Pr. Prāk. ix, 9) In Māgadhi, namely, the diphthong ए often stands in the place of the final syllable अञ्च; e. g., in Mṛichchhakati:

अइं तुए मुक ॥ i. e.

Skr. अइं त्वया मुक्तं ॥





sound अं may change to ऐं ; and this conclusion is confirmed by the fact that the phonetic equivalent of अं, viz. अं, also changes into ऐं ; e. g., the first pers. sing. pres. of the verb *to be* is in the Braj हैँ, in Alwari हँ (also high Hindi), in Jaipuri हँ, in Naipali हुँ (in Bangali आছি). The original of these forms is the Prákrit अच्चासि (see Prák. Prak. XII, 19.), the substitute for the Sanskrit अस्मि (from the root अच्च् for अस्, just as गच्च् for गम्, दच्च् for दप्). The initial अ of अच्चासि is dropped, (just as in हं or हगे for अहम् or अहकम्), and the final इ becomes *quiescent* (according to the Gaurian rule, see Essay III.) Thus we have हाम or हाँ (compare the Prákrit future; e. g., गमिस्सं for गमिष्यामि). This is modified to हैँ or हँ ; next the aspirated palatal ह् is reduced to the simple aspirate ह ; and thus we obtain हैँ or हँ. The *mode* of this change seems to be this, that the anuswára, being the substitute of an original labial nasal म्, is vocalised into the labial vowel उ ; at least this seems to be indicated by such Prákrit nouns as पाञ्च (= Skr. पाद), नाम, गाम, (= Skr. ग्राम) which in the Gaurian becomes पाँव, नाँव, गाँव, (Hindi), or पाछे, नाउँ, गाउँ, (Naipali) ; both, in both Gaurian languages equally, are pronounced पौँ, नौँ, गौँ.

The Naipali equivalent of the Hindi forms करनाँ and करनाँ is करनु. It approaches most nearly to the Alwari form करनाँ and must be considered as merely a modification of it (a reduction of the terminal long ऊ to short उ, so common in Gaurian). It has its exact counterpart in Gujarati in the neuter nouns ending in चानु (see Edaljis Guj. Grammar p. 26, note 5.) ; as उधराणु collection. I think these neuter nouns in उ, both in Naipali and Gujarati, ought correctly to be written with an *anunásika*, as we have it in the Gujarati infinitives in वुँ, as करवुँ *to do*. There are many examples of this change of a Hindi ऐ, ओ, or ऊ to उ both in Naipali and Gujarati. There is, e. g., the Gujarati infinitive, as करवुँ, (the exact equivalent of the Naipali करनाँ) which corresponds to the Braj Bháshá infinitive करवैँ and the Alwari, करवूँ and Márwari करवौँ ; again *sum* in the Braj Bháshá is हैँ, high Hindi and Márwari हँ, Alwari हँ, but in Naipali and Gujarati हुँ ; *quis* is in Hindi कौन, but in Naipali कुन, etc.

In order to remove all doubts as to the correctness of the identification of the ordinary Gaurian infinitives with the Sanskrit and Prákrit participles future passive formed by the affix अनीय, I will add the following, as I think, conclusive arguments.

1. On the theory that the Gaurian infinitives are verbal nouns formed

Or. एसे कस्सवि अपरावुदपक्खदुयाल्लके गेहे ॥ i. e.

Skr. एतत् कस्यापि अपरादृतपचद्धारकं गेहम् ॥

Or. काह न होइ चलाचले धणे ॥ i. e.

Skr. कस्य न भवति चलाचलं धनम् ॥





by the affix **ञन**, the Gujarátí infinitive, which ends in **वुँ** (as **करवुँ** *to do*, **जावुँ** *to go*) cannot be explained. Even if we should set aside the difficulty of deriving the termination **एँ**, **औँ**, **ऊँ**, etc., from the Prákrit **ञं**, and should admit that, e. g., Maráthí **करणेँ**, Hindi **करनौँ**, etc., are derivable from the Prákrit **करणं**, still there remains the Gujarátí **करवुँ**, which, it is manifest, can in no wise be connected with the Prákrit **करणं**. On the other hand, on the theory that the Gaurian infinitives are identical with the (Skr. or) Prákrit part. fut. pass. the Gujarátí infinitives find a very easy explanation. The Gujarátí **करवुँ** *to do* or **जावुँ** *to go*, etc., are evidently identical with the Maráthí **करावेँ** or **जावेँ**, *i. e.* the Gujarátí infinitives are identical with the Maráthí gerund in **आवेँ**. But the Maráthí gerunds in **आवेँ** are, as regards the sense, identical with the Maráthí forms in **णेँ** (e. g. **करावेँ** is identical with **करणेँ**). It follows that the Maráthí forms in **णेँ** and their equivalents in all the Gaurian languages must also be gerunds, *i. e.*, derived from the Sanskrit, and Prákrit part. fut. pass. (or gerund, which is only a particular use of the former), formed by the affix **अनीय**. On this theory everything falls easily and naturally into its place. Both Sanskrit participles\* fut. pass.,—those formed by the affix **अनीय** as well as those formed by the affix **तय**—passed through the Prákrit into Gaurian.\* In the latter they were among other uses put to the use of expressing the idea of the infinitive or gerund. But gradually one or the other of those alternative forms gained the ascendancy, and it so happened, that in all Gaurian languages, with the exception of Gujarátí, that participle future passive which was formed by the affix **अनीय**, dispossessed the other formed by the affix **तय**. On the contrary in Gujarátí the part. fut. pass. in **तय** dispossessed the other in **अनीय**. Still the *principle* of forming the infinitive is in all Gaurian languages identical. If this be the case, one may naturally expect that all or some Gaurian languages will retain traces of an original twofold form of the infinitive, derived from the twofold form of the Sanskrit and Prákrit part. fut. pass. Such traces actually exist, as I shall show, in the principal Gaurian languages. That both forms still exist and are commonly used in Maráthí has been already mentioned; e. g., *it is necessary for us to go abroad* is in Maráthí both **अन्हास देशान्तरीं जावया चेँ** and **जाण्या चेँ पडेल**; again *incitement to act* is either **करावया ची** or **करण्या ची प्रेरणा** (see *Manual* §. III. note.). As regards Hindi, while the modern High Hindí possesses only the forms in **ना** (= **नौँ**), the old and low Hindí dialects possess both forms. In the Braj Bháshá the infinitive may end both in **नौँ** and **वौँ**, e. g., Rájanítí p. 69, **दसनक बोल्हो भाई यामेँ कहा जानवौँ है**, *i. e.*, high Hindí **दसनक बोल्हा**

\* I may take this opportunity of stating that, whenever this phrase of *Sansk. forms passing through Prákrit into Gaurian*, is employed, it is not meant to express a *historic fact*—for Prákrit is not a derivation of (what is commonly called) Sanskrit—but a *phonetic fact*.



भाई इस में क्या जानना है; or p. 24, ताते भवा उपाय करि जीवों जोग नाही छपन त मांगिबों औ मरिबों समान है (=high Hindi जीना योग्य नहीं है ..... मांगना और मरना समान है). It may be remarked in confirmation of this view, that the declension of the infinitive in नै is apparently defective; it occurs only in the nominative (in नै) and locative (in नि); e. g., p. 4, बैठि रहनौ कपन को काम है (= H. Hindi बैठ रहना); p. 6. यह विचार करि कहनि लाग्यो (H. H. कहने लगा). But in the other cases the oblique form in वे of the infinitive in वै is substituted for the oblique form in ने of the infinitive in नै; e. g., हो तुम ते कह पूछवे को आया हो (= H. H. पूछने को); or मेरे मन की बात कह सो कहवे को नाही (= H. H. कहने की नहीं). In the Marwāri (form of the low Hindi), I believe, the infinitive in वै\* is even the only one in use; see the vocabulary appended to the "Selection of Khyāls or Marwāri plays" (Beawr Mission Press, 1866); e. g., पटवों to open (खोलना); ताकवों to leave (त्यागना); दिरावों to cause to give (दिलाना); निकसवों to quit (निकसना), etc., etc.; examples are:

मैं हूँ बाणो रामगढ़ रो अंगरेज रो पाये ।  
 मारो माल लूटवाबालो नहीं रजपूतो जाया ॥ e. g.

H. H. मैं हूँ बनिया रामगढ़ का अंगरेज की करिन्दा ।

हमारा माल लूटनेवाला राजपूत न होजाये ॥

Play Dungarasinha p. 4.

उकम दीया है कंपनी समै अदल जमावा आया ॥

याँ कै कोई वांटणुं स जी थे कूँ लड़वा जाये ॥

H. H. मैं अदल जमाने को आया हूँ तुम कूँ लड़ने को जायेगे ॥

Play, Angrez our Pathān p. 73, 75.

As regards Panjābi, I am inclined to think that what the Lúdiānā Grammar calls the indefinite participle and which is not declinable, is, in reality, that other form of the infinitive. It terminates in वे which is identical with the *oblique form* of the Braj Bhāshā infinitive in वै.—As regards Bangāli, it possesses both forms of the infinitive, viz. in न and in दवा; as करण and करिवा to do. The latter form in दवा is to be compared with the Braj Bhāshā *oblique form* in दवे of the infinitives in दवाँ;

\* I write the Marwāri Infinitive (in वै) as well as the Braj Bhāshā infinitive (in वै) with a final Anunāsika. The printed books that I have seen, never have it. The reason is that by the vulgar a final nasal is often very indistinctly pronounced, sometimes even altogether dropped; e. g., the local particle में is in Gaṇwāri and other low Hindi dialects commonly pronounced only मे or मा. Nevertheless there is no doubt whatever, that the correct form is में or मा. For the same reason the form with the final Anunāsika is the correct form of those infinitives; for only the Nom. sing. neuter of the part. fut. pass. is capable of expressing the infinitive idea, that is, the mere act of the verb, see the sūtra of Pānini quoted below; e. g., करिबों can only be a corruption of कर्त्तव्य but not of कर्त्तव्य, as in Latin agendum may stand for agere but not agendus.





as Bang. करिबा = Braj करिबे or करवे. They are identical; for, as I shall show afterwards, the Bangálí infinitive in इबा is merely the *oblique form* (= Prakrit genitive sing.) of an infinitive in इबौ; it never occurs in the nominative (*i. e. direct form*); see Shama Churn Sircar's Grammar p. 149, note 40. The Bangálí infinitive in इबा is also almost identical with the Prákrit form of the part. fut. pass. in तव्य, as given in some MSS. which have, e. g., हसिष्व for हसिष्वं the usual form. The form हसिष्व is, no doubt, the form of the later Prákrit, arisen from the older form हसिष्वं by sandhi (or phonetic decay). The real origin of the infinitive (or gerund) in न has become very much obscured in modern Bangálí; though there are a few indications of it still remaining; e. g., while the final short अ of the infinitive of the Ist and IIIrd classes of verbs is *quiescent*, that of the infinitive of the second class and the causal verbs is pronounced (as ॐ). Again while the infinitives of the former classes are declined according to the first declension, *i. e.*, like such nouns as बाघ tiger, सन्तान child (with *quiescent* अ); the infinitives of the IInd class are declined according to the IIIrd declension, *i. e.*, like such adjectives as बर great, छोट small (with audible अ), see Shama Churn Sircar's Grammar, pp. 129, 149, note 40. For example करण to do (Ist class) is pronounced karan, but वेड़ान to walk (IInd class) is pronounced beránō. Again, the genitive of करण is करणेर, but that of वेड़ान is वेड़ानर. I have shown already (in Essay III) that the Bangálí nouns ending in an audible अ, belong to the *Prákritic element*, that is, that their final audible अ is a contraction of the original Prákrit ending अक (इक or अच, इच). Accordingly, the final audible अ of the infinitive also indicates that it must be the remnant of an original Prákrit ending इच or ईच (that is, that अन anō stands for अणीच or अणिच). Another indication of that real origin of the infinitive or gerund in न is this, that they may optionally end in नि, instead of न; e. g., *threading* may be both गायन and गायनि (Ist class); *burning* पोड़ान and पोड़ानि (IInd class), *thatching* छाउन and छाउनि (IIIrd class), see Shama Churn Sircar's Grammar, p. 186. Now this form in नि is also found in the Braj Bháshá, where it is a substitute for the form in ने or वे (*i. e.*, the *oblique form* of the infinitives in नौ and वौ); e. g., he began to speak is in the Br. Bh. कहनि लाग्या for the high Hindí कहने लगा. The termination अनि is, evidently, in both languages alike, a corruption of the Prákrit termination अणीच; and as it is found in the infinitives of all three classes of Bangálí verbs, it indicates that the infinitives of all three classes are really the Prákrit Part. Fut. Pass. in अणीच (Skr. अनीय). Moreover these forms of the infinitive in इ (as कहनि), and the Naipálí infinitive form in उ (as भननु) clearly show, how gradually the original ending अणीच has become worn down to a simple अ; for the final short इ and उ become according to the Gaurian law *quiescent* and thus like अ (see the explanation of this process



in Essay III) ; e. g., instead of the Braj Bháshá कहनि लाग्यो we have in Naipáli भनन लाग, in Sindhi चवन लगो. In this respect Sindhi agrees with Bangáli ; in both languages the termination of the original affix चनीय has become worn off altogether. Sindhi infinitives, e. g., are पढ़न *to read*, जागन *to wake*, करन *to do* (see W. H. Wathen's Sindhi Grammar, pp. 37, 38). But it is clear that in modern Bangáli, in consequence of the affix चनीय having become decayed to चन and the real origin of the latter being forgotten, a great confusion has arisen. For in many cases, Sanskrit verbal nouns, really formed by the affix चन (not चनीय), have been introduced into Bangáli to serve as infinitives, under the mistaken idea that the Bangáli infinitives in चन, are really such verbal nouns. A notable instance of this kind is the so-called infinitive करण *to do*. This word करण is really the Skr. verbal noun करणम्. This is shown by the presence of the lingual ण. It is not a corruption of the Skr. करणीयम् ; for in that case it would be written करन (as it is in Sindhi), as Bangáli, like Hindí, turns all lingual ण which it has received through the Prákrit, into dental न. This is proved by the causal करान (for Prákrit कारावणीय, for Skr. कारणीय), which ends in the audible च (karāñō), and therefore has retained more of its original character. I believe, therefore, that the real infinitive of the (primary) verb *to do* is करन, and not करण, which latter form is probably merely an emendation of Bangáli purists, prompted by a mistaken etymology, (as if it were a Sanskrit word, and identical with the Skr. करणम्). Perhaps old Bangáli MSS. (of which I have no specimen) might bear out my view. As regards Gujaráti, there also both forms of the Skr. and Prák. Part. Fut. Pass. occur. That in नव्य we have represented by the ordinary Gujaráti infinitives in वुं. The other in चनीय, I think, we can trace in the Gujaráti verbal nouns in चाणु, as उधराणु collection (see Edalji's Grammar, p. 26, note 5).

2. Another argument for the identity of the Gaurian infinitive and the Sanskrit and Prákrit Part. Fut. Pass. in चनीय is this, that in Hindí and Panjábi the infinitives are often used as adjectives and admit of a differentiation of gender and number ; e. g., in High Hindí and Panjábi करना is masculine and neuter, and करनी is feminine ; in the Braj Bháshá it is करनौ masculine, करनी feminine, and करनौ neuter. Thus, "to make many excuses is not good," is in Hindí बहुत बातें बनानी (feminine plural) अच्छा नहीं ; "there will be gnashing of teeth" is in Panjábi कचीचीया लैणीया होणगीया (lit. to take gnashings of teeth will be) ; see Etherington's Hindí Grammar, §. 541, and Loodiana Gram. of Panjábi §. 156. Now the Sanskrit and Prákrit nouns in चन do not admit a change of gender and number in relation to another noun, because they have no adjectival force, but are merely substantives ; whereas the Part. Fut. Pass. in चनीय are adjectival and change in gender and number. It does not seem probable, nor even



possible, that the verbal nouns in अन can have changed their character so radically in Gaurian.

3. It is a very peculiar usage of all Gaurian languages to employ the infinitive to express *command* or *necessity*. E. g., "never go to their house" is in Hindi उन के यहाँ कभी न जाना (Braj Bhāshā जानाँ or जावैँ), which would be in Sanskrit असूयां स्थानं कदाचिद् न यानीयम्. Again "we must all die" is हम सबों को मरना है = Skr. अस्माकं सर्वेषां (हते) मरणोपमसि. In Panjābī तुमो आउना "you must come" = Skr. युष्माभिर आगमनीयम्. In Marāṭhī पत्रलिहीत जाणे "continue to write to us." (See Etherington H. Gr. §. 544, 545. Loodiana P. Gr. §. 95. Manual of Mar. Gr. §. 110, note). The only rational explanation of this usage is afforded by the theory of the identity of the Gaurian infinitive with the Sanskrit and Prakrit Part. Fut. Pass. It may be also noted that in modern Sanskrit, the proper imperative is almost as a rule substituted by the Part. Fut. Pass. (in अनीय or तव्य).

4. All the uses to which the Sanskrit Part. Fut. Pass. in अनीय is put according to this theory in Gaurian, (e. g., to express the mere act, as infinitive), is provided for by Pānini. He has a sūtra ह्यल्युटो बहुलम् (III, 3, 113), which is explained in the Laghu Kaumudī to mean, that the Kṛitya affixes, to which अनीय and तव्य belong, are occasionally employed in many ways different from that enjoined by the ordinary rules (see Siddhānta Kaum. p. 300, 2nd Vol. and Laghu Kaum. No. 823, p. 284). The examples given are स्नानीयं चूर्णं powder for bathing (to both) = Hindi नहाने का चूर्ण; and दानीयो विप्रः a brahman who is to be presented (with something); with which compare in Panjābī मै उये विहिणा ऊण हँ = Hindi मै बड़ा बैठने का हँ; or ऊण होरना गला दी बाबत् लिखणा हँ = Hindi मै (or हैँ) दूसरी बातों की विषय लिखने का हँ (see Loodiana Grammar, §. 95). These irregular, *bahulam* uses, of the Part. Fut. Pass. were, no doubt, more peculiar to the *vulgar* Sanskrit; and, hence, it is intelligible, how they became the regular uses in the Gaurian. Note also the commentary to the sūtra तथ्यतयानीयरः (Panini III, 196), where the example is given एधितव्यं एधनीयं तव्या and this is explained भावे औत्सर्गिकम् एकवचनं क्लीबत्वं च (Siddh. Kaum. p. 298, 2nd Vol.), i. e., when the Part. Fut. Pass. expresses the *action itself* (= एधनम्), the *singular and neuter* is *naturally* employed. Accordingly the Part. Fut. Pass. (in अनीय and तव्य) in the sing. neuter may express the mere act of the verb. Both characteristics are found in the Gaurian (so called) infinitives. They, quā *infinitives*, both express the mere act of the verb, and also stand in the sing. neuter; as Hindi — नैँ or (ना), Marāṭhī — नेँ, Gujarātī हुँ, etc.

5. Perhaps the most serious objection which is felt at first sight against the identity of the Gaurian infinitive with the Sanskrit and Prakrit Part. Fut. Pass. is this, that it involves a change from the Pass. and Future to the Active and Present. But we have an exactly analogous phenomenon





in Latin. The Latin Part. Fut. Pass. in *andus* or *endus* may also have a passive or an active sense. When it is used passively, it may either imply futurity, in which case it is the proper Part. Fut. Pass., expressing chiefly necessity or fitness; or it may imply present time, in which case it is a verbal adjective (commonly called gerundive), expressing an enduring contemporaneous action. When it is used actively, it serves to express the oblique case of the Infinitive Present Active, and is called the Gerund. Now exactly in these three ways the Sanskrit and Prākṛit Part. Fut. Pass. is used in Gaurian; e. g., in gerundial construction, *there is time to write a letter*, is in Latin *epistolam scribendi tempus est*, in Gaurian चिट्ठी को लिखने का काल है; or in gerundival construction, Latin, *tempus est epistolae scribendae*, Gaurian चिट्ठी लिखनी का काल है; or in Part. Fut. Pass. construction, *you must write a letter*, Latin, *a vobis epistola scribenda est*, तुम से चिट्ठी लिखनी है (or लिखनी चाहिये). The Gaurian goes a step beyond the classic Latin in using the Part. Fut. Pass. also to express the nominative case of the infinitive; but the same usage is not unknown to the Latin of the middle ages, where the Nom. Sing. Neut. is sometimes used to express the mere act of the verb as *scribendum* to write = Hindī लिखनै (H. H. लिखना).<sup>\*</sup> The Latin has another parallel case in the verbal adjectives in *tivus*, which have generally active sense, but as regards origin are identical with the Sanskrit Part. Fut. Pass. in *तय* (e. g., *activus*, *dativus* = *दतयः*, etc.), see Bopp's Comp. Gram. §. 902, p. 352, IIIrd Vol. Also the Pāli has an analogous usage. It employs sometimes the Sansk. Part. Fut. Pass., formed by means of the affix *य*, to express the mere action of the verb, e. g., *देय्य giving* = Skr. *देय* (of root *दा*), *पेय्य drinking* = Skr. *पेय* (of root *पा*), *हेय्य rejecting* (of *हा*); *मेय्य loving* (of *मा*), *ज्ञेय्य knowing* (of *ज्ञा*); see Mason's Pāli Grammar, §. 263a, p. 146, also §. 235b, p. 134.

But we must return to our original enquiry. We have now seen that the Gaurian neuter terminations *ई*, *औ*, *औ*, *ऊ*, etc., cannot be derived from the Sanskrit neuter termination *अम्* or the Prāk. neuter termination *अं* or *अ*. We have further, by an examination of the Gaurian infinitive and gerund, seen, that their neuter terminations *औ*, *ई*, *ऊ*, etc., are derived or contracted from the Sanskrit termination *ईयम्* and the Prākṛit termination *ईयं* (or *इयं* or *अयं*). This not only confirms the law of derivation stated previously (pp. 65, 66.), but also discovers the *modus* of the derivation of the Gaurian neuter terminations *ई*, *औ*, *ऊ*, etc., viz., that they represent a Sanskrit or Prākṛit terminal *dissyllable* (in the present case *ईयं* or *इयं*).

\* If Bopp's opinion (Comp. Gram. §. 809, p. 183, IIIrd Vol.) be correct, as it doubtless is, that the Latin Part. Fut. Pass. in *andus* is originally identical with the Prāk. Part. Pres. Act. in *अन्नः* or *अन्दः* (Skr. in *अन्*), the process of change in meaning is in Latin exactly the reverse from that in Gaurian. But this does not affect the argument in the text, as the principle of change is identical in both cases.



I will now proceed to illustrate this theory by the examination of a few other neuter forms in Gaurian which will lead us to the same result. In Maráthi there are three irregular past participles of an identical formation, quite peculiar to these three only. They are गेले (of root गम् *to go*), केले (of root क् or कर *to do*), and मेले (of root मृ or मर *to die*). I have given them in the form of the Nom. Sing. Neuter. Their corresponding masculine would be गेलो or गेला, केलो or केला, मेलो or मेला.\* These three past participles are also irregular in Mágadhi Prákrit; and their irregularity is also quite peculiar to themselves. The corresponding (Mágadhi) Prákrit forms are, namely, गडे, कडे, मडे, (see Pr. Prak. XI, 15). These forms are in the nominative singular masculine; the final ए being the Mágadhi substitute for the common Prákrit termination यो (Pr. Prak. XI, 10.). Their corresponding neuter would be गडं, कडं, मडं. These represent the Sanskrit forms गतं, कृतं, मृतं. Here the Sanskrit dental त् of the past participle affix त has become in (Mágadhi) Prákrit lingual ड; and this in Maráthi-Gaurian has changed to ल. This change of Skr. त and Prákrit ड to ल, however, is in Maráthi not confined to the three past participles गेले, केले, मेले, but has become universal, as *got loose* is सुटले, etc.; and therefore it is not the irregularity peculiar to these three participles. The peculiar irregularity of those three participles is in Prákrit, indeed, their change of the Skr. त to ड; but in Maráthi the peculiar irregularity is not the change of ड to ल, but of the first अ to ए; compare Mágadhi Prákrit गडं, कडं, मडं, with Maráthi-Gaurian गेले, केले, मेले. But this peculiar Maráthi change of अ to ए is also explained by the Prákrit; for, fortunately, in regard to one of the three (*viz.*, केले) the change shows itself already in Prákrit. Here, namely, we meet with the past participle form कलिकं or केलकं for Sanskrit कृतम्. For केलिकं we find also केरिकं or केरकं. They are derived from the original past participial form कडं or कलं or करं. To this the peculiar Prákrit affix क is added (hence करक or कलक); then the first अ is changed to ए by the rule of Pr. Prak. I, 5. (hence केरक or केलक); then the termination अक is weakened to इक (hence केरिक and केलिक). We have now traced the origin of the Maráthi form केले in its various steps. They are; 1., Skr. कृतं, 2., Mág. Prák. कडं or कलं, 3., Prák. कलकं; 4., Pr. केरकं; 5., Pr. केलिकं or केलियं, 6., Mar. Gaur. (old) केलियं, 7., Mar. केले. That is, the terminal ऐ of the Maráthi form केले is not derived from the terminal अ of the Prákrit form कडं, but from the *terminal dissyllable* इयं or इयं of the Prákrit form केलियं or केलियं. In other words, we have arrived at exactly the same result as that of the previous examination of the infinitives. But to this another result must now be added; *viz.*, that the

\* The masc. forms in यो here and wherever else mentioned in these essays, are old Maráthi.



terminal dissyllable इयं, to which nothing corresponding exists in Sanskrit, is owing to the addition of the Prākṛit affix क.

Now by an exactly analogous process we may derive from the Māgadhi Prākṛit forms गडं and मडं, first the intermediate Prākṛit forms गेलिकं and मेलिकं; and next, the Marāṭhi forms गेले and मेले. The identity of the process of their origin is guaranteed by the identity of their peculiar irregularities.

But further, the neuter termination ले is not only found in those three past participles (गेले, केले, मेले), but in *all* Marāṭhi past participles. It follows therefore, that their formation must be analogous to that of the other three participles; that is, that their termination ले cannot be derived from the Sanskrit or Prākṛit termination तं, but from a Prākṛit termination तर्क or तिकं; in other words, from the base of the ordinary Prākṛit past participles, increased by the peculiar Prākṛit affix क; \* e. g., Mar. मारिले killed is not derived from Prākṛit मारितं or मारिचं, but from the amplified Prākṛit form मारितिकं = मारिडिचं = मारिलियं = मारिले or मरितिकं = मारिडिचं = मारिलियं = मारिले.

But that is not all. The result of the present enquiry must plainly be put into the form of a much more general law; viz., whenever a Prākṛit (or Sanskrit) neuter noun, be it a participle or a substantive or an adjective, has a terminable monosyllable च, but shows the termination ऐ in its stead in Marāṭhi; this Marāṭhi termination ऐ cannot be derived from the Prākṛit terminal monosyllable च, but must be derived from a Prākṛit terminal dissyllable चयं or इयं (for चकं or इकं), obtained by adding the Prākṛit affix क to the Prākṛit base in च. No other Prākṛit affix can here come in consideration (for effecting that increase of the base); 1., because no other affix beside क is added *without affecting the meaning*; and 2., because, though in a few cases one or two other affixes are added without any meaning, (e. g., Skr. विद्युत् lightning is in Prāk. विज्जू or विज्जुली; Skr. पीत yellow is in Prāk. पीयं or पीयलं, see Pr. Prāk. IV, 26), such addition of these affixes is confined to these isolated cases, while the addition of क is *most common* and may be made to *any* noun (Pr. Prāk. IV, 25); and 3., moreover in order to account for the Gaurian terminal forms ऐ, औ, etc., the elision of the consonant of the affix is necessary; now क can be elided, but ल is not elided.

The results which have been set forth so far, might have been equally well arrived at by taking the case of a Hindi past participle. E. g., *it is*

\* It is noteworthy that in the Gāthā dialect (or vulgar Sanskrit) "nouns and participles are frequently lengthened by the addition of the syllable क, as रोदन्को, गच्छमानको, भाषमाणकाः, ददन्तिकाः, रोदितयकाः, आगतिकाः, दासिनिकाः." (Muir, *Sanskrit Texts*, vol. II, p. 122). Mark, how often the terminal syllable चक changes to इक.



said is in the Braj Bháshá कछौँ. This is the nom. sing. neuter; the masc. would be कछो, the fem. कछी. The corresponding form to कछौँ is in Sanskrit कथितं and in Prákrit कहिदं or कहिथं. Now the form कहिथं could not yield the Hindi form कछौँ, because the vowel इ of the Prákrit form is present in the semivowel य of the Hindi form and the remaining terminal थं cannot give औँ, according to general glottic law. But if we add the favourite Prákrit affix क to कथितं, everything is natural and easy. For कथितकं would be in Prákrit कहिच्चथं, and this in Hindi-Gaurian कहिथौँ or कछौँ\* (just as हथं ego becomes हौँ).

According to this theory, then, the original of the Gaurian neuter terminations ऐँ, ईँ, औँ, अँ, ऊँ, उँ, is the Prákrit terminal dissyllable इथं or अथं, which, according to Gaurian law,\* becomes in old Gaurian इयं or अयं or अवं. If this be really the case, it might not unreasonably be expected, that traces of those original terminal forms इयं, अयं, अवं may be found in Gaurian. Such examples I am, indeed, able to produce; and they will be a further confirmation of the truth of my theory. Only this is to be observed. The Gaurian terminal forms इयं, अयं, अवं, are very slightly, if at all really, different from the Prákrit terminal form ईथं (for Skr. ईयं), इथं (for Skr. इकं) and अथं (for Skr. अकं). If, therefore, the Gaurian forms at all existed, they can only have existed in the earliest period of the Gaurian, when it was yet only a modified and decayed form of Prákrit. In Hindi we have no literature dating so far back. The earliest Hindi work known at present is the epic of Chand, which is already subsequent to that period; how much subsequent, it is not easy to say; but it is in Chand, that we find traces of those original Gaurian neuter terminations; only, for the reason now explained, they must not be expected to be very common.† Such examples are the following:

\* This Gaurian law has been repeatedly referred to in these essays, though I have never distinctly stated it. It is this; Gaurian cannot tolerate the hiatus of vowels created by the Prákrit, through ejecting the medial single mute consonants of the Sanskrit; and in order to prevent such hiatus, Gaurian either makes Sandhi of the vowels or separates them by inserting the (euphonious) semivowels य, or व. It should be noted, in order to prevent misunderstanding, that Gaurian sometimes creates hiatus of its own; these, of course, it retains. The law has only reference to hiatus, created by Prákrit, e. g., Skr. उपविष्टः becomes in Prák. उच्चरद्धो; in Gaur. बैठा (Hindí); Skr. चर्मकारः, in Prák. चम्मचारो, in Gaur. चमार; Skr. करणधारकः, in Prák. करणधारथो or करणधारथो, in Gaur. (Mar.) करणारो or (Hindí) करणहारा; Skr. लोचनं, Pr. लोचणं, Gaur. लोयनं; Skr. गतः, Pr. गथो, Gaur. गया; Skr. छतः, Pr. किथो, Gaur. किथा, etc.

† On account of Maráthí being so much more conservative of its Prákritic character, I should expect old Maráthí to afford many more examples of those Gaurian neuter terminations; but unfortunately I have had no opportunity of examining any old Maráthí work.



बोले वसन अली तामयं ।

चङ्गवां वडि अय्यानयं ॥ I, 26.

Or हननंनिनयककसेन । कहितं न च पूर्वयं ॥

असुद्धं च छतं एषां । विना खांसी रिन जुधं ॥ IV, 220. 230.

or कुट्टे सिरं करारयं ।

कपाम औं पिंजारयं ॥

परोय मंग सामयं ।

च लुक् रषि नामयं ॥ IV, 204. 207.

फटिय वत प्रहासं । अनिलं सिजेम परिमलयं ॥ IV, 278.

An instance of the neuter in इयं occurs, e. g., in the following verse :

कर मोहि पल्लव भांनियं ।

चङ्गवान तो घरे हानियं ॥ I, 26.

In the last verse भांनियं and हानियं are probably contractions of भननियं and हननियं for Skr. भञ्जनीयं and हननीयं in the sense of the infinitive. In the former verses अज्ज्ञानयं stands for अज्ज्ञानं; पूर्वयं for पूर्वं, करारयं for करारं, पिंजारयं for पिंजारं; सामयं for श्यामं; नामयं for नाम. And the only, and natural, way of explaining the origin of these amplified forms is by the theory that the shorter forms were increased by the addition of the Prākṛit affix क; thus we should have (with the usual elision of क्) the Prākṛit forms अज्ज्ञानय्, पुव्वय्, करारय्, पिंजारय्, सामय्, नामय् and finally these forms would change in Gaurian by the usual insertion of the euphonic य् into अज्ज्ञानयं, पूर्वयं, etc.\*

Such neuters as अज्ज्ञानयं, पूर्वयं, etc., prove clearly that general principle which has been stated already, that the Prākṛit affix क was not only added to participles past passive, but also to substantives and adjectives; though this is a fact, which perhaps hardly needed to be particularly stated. But these neuters account very well for the Marāṭhī neuter adjectives and substantives in ऐ as उचे<sup>०</sup> *high*, तले<sup>०</sup> *tank*, etc. For the termination अयं as previously shown naturally contracts into ऐ.† Hence, e. g., उचे<sup>०</sup> presupposes an older form उच्चयं, which stands for उच्चं just as अज्ज्ञानयं for अज्ज्ञानं.

We have now seen that the Prākṛit neuter nouns (Part., Adj., Subst.) may pass into the Gaurian either in the *general* form of their base ending

\* I may add here, once more, in explanation, that it is not to be supposed that every Gaurian neuter actually passed through these different steps of phonetic modification. The process of neuter formation, detailed here, only took place really when Gaurian first separated from Prākṛit. After it had become the rule in Gaurian, that neuters must end in अयं or ऐ or औ, many neuters, of course, were formed which never passed through any of the steps of the process; e. g. the neuter पूर्वयं is formed direct from the Sanskrit पूर्वं. If it had passed *really* (as *ideally* it must be supposed to have passed)\* through that process, it would have been either पूर्वयं; or पुव्वयं; for the Prākṛit of पूर्व is पुव्वं.

† In Col. Vans Kennedy's Marāṭhī Dictionary the form भे<sup>०</sup> is given for भयं fear.





in च, in which case these neuters terminate in Gaurian in च; or in the particular forms of their base ending in च्यं (amplified by the addition of the affix क). This termination च्यं becomes in old Gaurian चयं. Instances of old Gaurian neuters in चयं have been adduced. In modern Gaurian the termination चयं is contracted to ए; and this neuter terminal form we have in Maráthi.

But the old Gaurian termination चयं is not the only form which the Prákrit termination च्यं (= चकं) assumes in Gaurian. The Prákrit termination चकं (or च्यं) suffers in Prákrit already a twofold deteriorating process. It changes sometimes into इकं (or इचं), sometimes into उकं (or उचं). This deterioration is found in Prákrit only in a few and isolated cases; but in Gaurian it has assumed much greater dimensions, and has affected, as we shall presently see, whole classes of nouns. It is therefore doubtlessly more appropriate to consider these phonetic modifications of the original Prákrit termination च्यं as a Gaurian one, than as a Prákrit one. This should be noted, as it has some bearing on the question of the presence or absence of an *oblique form* of the Gaurian nouns which have this modified terminal form. For proofs of the deterioration of the Prákrit base-termination चक into इक and उक, I must refer more especially to the examination of the Gaurian masculine and feminine nouns in ई and ऊ. In the Mṛichchhakati the form केरक (the Prák. modification of the Sanskrit कर्क) often alternates with करिक. Again, the Sanskrit दृश्यक *scorpion*, itself already modified from an original form दृयक, becomes in Prákrit विंदुक or विंदुच or विन्दुच (cf. Pr. Prák. I, 15).<sup>\*</sup> Again, the Sanskrit माढक becomes in Prákrit माउच (for मातुक cf. Prák. Prák. I, 29); that is माढक first changes to मातक, (by Pr. Prák. I, 27; next to मातुक). If the Prákrit base termination in चक may change to इक or उक in the case of masc. and fem., it is plain that it may do so also in the case of neuters. In Gaurian the Prákrit neuter terminations इचं (= इकं) and उचं (= उकं) are slightly modified; viz., in old Gaurian to इदं and उदं, and in modern Gaurian to ई and ऊ, e. g., *pearl* is in Skr. मुक्ता in Prák. मोक्ता or मोत्तिका. The latter has a bye-form मोत्तिकं or मोत्तिचं (Skr. मौत्तिकं), and this changes in old Gaurian to मोत्तिचं, in modern Gaurian (Maráthi) to मोत्ती. That this is the true derivation of the final of मोत्ती is proved by such neuter nouns as पाणी *water*, मोरी *pepper*, लोणी *butter*, दही *curds*. For पाणी represents an old form पाणियं, a Prákrit form पाणिचं, and Skr. पाणीयम्; मीरी represents an old Gaurian मिरियं, a Prákrit मिरिचं, and Skr. मिरिचम्; लोणी an old Gaurian लोणियं, Prák. णोणीचं or णोणिचं, and a Sanskrit नवनीतम्; दही an old

<sup>\*</sup> But the unmodified form विंदिक or विन्दिक must have existed also in Prákrit. This is proved by the Naipáli which has विन्दी for scorpion, (see St. Luke xi. 12, x. 19.), while the Hindi has विन्दू and the Maráthi विच.



Gaurian दक्षिण, a Prák. दक्षिण or दक्षिक, and Sanskrit दक्षि. Again *touch* is in Sanskrit स्पर्श, in Prákrit फंस or फंसक; the latter has a bye-form फंसुक or फंसुच, (with the meaning *branch* of a river) which changes in old Gaurian to फंसुवं and in modern Gaurian (Maráthi) to फंसू. This derivation is proved by such neuter nouns as अंसू *tear* which stands for a Prákrit अंसुच or अंसुक and a Sanskrit अश्रु; and जू *yoke* which stands for Prákrit जुच and Sanskrit जुगम्.\*

We have now discovered the derivation of all the Gaurian neuter terminal forms; viz.

Mar.	एँ	is derived from old Gaur.	अचं	and Prák.	अचं (= अकं)
"	ईँ	" " " "	इचं	" "	इचं (= इकं) or ईचं (= ईकं)
"	ऊँ	either " " "	उचं	" "	उचं (= उकं)
		or " " "	अवं or ओं	" "	अचं (= अकं)
Hindi	औँ	} is derived	अवं or ओं	"	अचं (= अकं)
	ओँ				
	ऊँ				
Gujar.	उँ	" " " "	अवं or ओं	" "	अचं (= अकं)
Naipáli	उँ	" " " "	अवं or ओं	" "	अचं (= अकं)

The neuter terminal forms, of which the derivations are here given, are the terminations of the *direct forms* of the Gaurian neuter nouns. We will now proceed to examine the *oblique forms* of the same nouns. And it will be seen that this examination will confirm the result already attained.

We will first take the Maráthi neuter nouns in ऊँ. These are divided into three classes; (1) those which have no *oblique form* at all, as राजासू a kind of vegetable; (2) those which have an *oblique form* in आ, (i. e., substitute आ for ऊँ), as तटू pony, *oblique form* तटा; (3) those which have an *oblique form* in वा, (i. e., substitute वा for ऊँ), as तारू ship, *oblique form* तारवा (or तारवा). Now if we turn back to the list of derivations of the *direct forms* given above, we find a twofold derivation of the *direct form* in ऊँ, and it will be easily seen, that there is a close agreement between the twofold derivation of the *direct form*, and the three-fold formation of the

\* Some other neuters of this kind are the following; तारू ship for Prakrit तारचं bye-form of तारचं and Sanskrit तारकम् a raft, float; गलू bile for Prákrit गण्डचं, bye-form of गण्डचं (= गण्डकं), amplified from Sanskrit गण्डः; पेलू bile for Prák. पेडचं, bye-form of पेडचं, and Sanskrit पिटकम्. Again कुसू circumvallation for Prák. कुसुचं and Skr. कुशुलम्; कुंऊ powder for Prák. कंकुचं and Sanskrit कंकुमम्; थरू handle for Prák. थरचं (= थरकं), amplified from Sanskrit त्वर. The change of the Skr. comp. cons. त्व into थ is noticeable and exceptional; the regular change is into ह (see Pr. Pr. III, 40.), थ being the regular representative of ह (see Pr. Pr. III, 12). Note also that the Hindi equivalent of the Mar. जू yoke is जुआ or जू, the former of which would represent a Prák. form जुचचं for (जुगकं). The form अंधुच occurs in the old Hindi of Chand; e. g. in the verse.

उगमे तहां अंधुच इ नयनं ॥

Devagiri Kathā v. 22.



*oblique form.* Namely (1), neuter nouns in ऊँ which have an *oblique form* in आ, are derived from a Prākṛit *base* in अच (= अक); and (2) neuter nouns in ऊँ which have an *oblique form* in वा, are derived from a Prākṛit *base* in उच (= उक); and (3) neuter nouns in ऊँ which have no *oblique form* at all, are derived or rather modified from Prākṛit neuter nouns in उच (= उक). Examples will explain this further. A neuter of the first class is पिऊँ *cub*; in Sanskrit the word is पिङ्गः masculine, but the neuter (in diminutive or endearing sense) would be पिङ्ग. The latter, in Prākṛit, is पिङ्ग or पिङ्गक or पिङ्गच. Again, the last of these पिङ्गच, changes in Gaurian to पिङ्गो and this to पिङ्गू. The latter is the present Marāṭhī *direct form* of the word. Now the genitive of the Prākṛit पिङ्गच is पिङ्गचस्स or पिङ्गचास or पिङ्गचाह. The last of these becomes in Gaurian पिङ्गचा or (contracted by Gaurian law) पिङ्गा, which is the present Marāṭhī *oblique form* of the word. Again, पेळू *boil* is a neuter of the second class. The Sanskrit is पिटः masc. or पिटकं neuter. In Prākṛit the latter becomes पेडच, which must have had a (probably vulgar) bye-form पेडच; and this form पेडच changes in Gaurian to पेळुव (or perhaps पेळव), and this to पेळो,\* and this to पेळू, which last is the present Marāṭhī form of the word. Now the genitive of the Prākṛit पेडच is पेडचस्स or पेडचास or पेडचाह. The last of these forms becomes in Gaurian पेळचा or (contracted by Gaurian law) पेळा, which is the present Marāṭhī *oblique form* of the word. Dadoba in his Marāṭhī Grammar admits only this form; but the *Manual* apparently admits also a form पेळवा. If this be correct, the *oblique form* in अवा, doubtlessly, is merely a euphonic modification of the original *oblique form* in वा, in order to obviate the difficulty of pronouncing a double consonant.† Again चाँचू is a neuter of the *third* class. I know no Sanskrit or Prākṛit etymology for this or most of the neuters of this class, though, no doubt, some of them may have such an etymology. But they all have been evidently so much phonetically modified by the Gaurian, that their origin is almost unrecognizable. And having thus a purely Gaurian form, it is no wonder, that they are subject to Gaurian law, and admit no *oblique form* at all; that is, they belong to the *proper Gaurian* element. I ought to mention, however, that Dadoba (in his Grammar, §. 198., p. 72) does not admit these neuters at all; neither is any of them found in Col. Vans Kennedy's Marāṭhī dictionary; and, lastly, Marāṭhī Paṇḍits of Benares, of whom I have enquired, do not know them.‡ Even according to the *Manual* which enumerates them on p. 29., §. 67, 7., they are only a very few (about 18 altogether); and even of these some are optionally Prākṛitic and admit the *oblique form* in वा or आ. They are the following अवालूँ, उटणूँ, उबालूँ, खटूँ, चाँचूँ,

\* In Bangālī उच or उव commonly change to ओ, see Forbes' Gr pp. 160-4.

† The separation of a compound consonant by means of an inserted euphonic अ or इ is rather common in Gaurian.

‡ I have seen, however, since that Molesworth gives them all in his dictionary.



दाँडूँ, जावुँ, टाँटूँ, पचेहँ, फाँफूँ, दाँडहँ, हँचूँ, \* \* अगहँ, \* \* राजालूँ, \* शंखूँ, \* अलूँ, \* कुहँ, \* कुहँ. Those marked with two asterisks have optionally an *obl. form* in आ, and those marked with one asterisk an *obl. form* in वा. This latter fact is explained by the circumstance, that, as has been already noticed, the deterioration of the termination अकं (or अथं) to उकं (or अथं) took place, as it were, on the confines of the Prākṛit and Gaurian, and that, therefore, the neuter nouns which exhibit this deterioration, are sometimes treated as *Prākṛitic*, sometimes as *Proper Gaurian*. As regards the two other classes; that which has the *oblique form* in आ (*i. e.*, 1st class), contains all the neuter nouns in कै,\* the only exceptions being those already mentioned as *proper Gaurian*, and the following nine nouns गलूँ *boil*, जूँ *yoke*, ताहँ *ship*, थहँ *haft*, हँ *scar*, वरहँ *iron ring*, बोलूँ *sauce*, फाँखँ *branch of a river*, पेलूँ *boil*, which form together with those marked with *two* asterisks in the list of *proper Gaurian* neuters (hence altogether 13) the 2nd class, *i. e.*, that which has an *oblique form* in वा. The paucity of the nouns of this class cannot surprise, if we consider, that the deterioration of the termination अकं into उकं can only have taken place quite exceptionally.

Next, we come to the Gujarāṭi and Naipālī neuter nouns in उँ, and the Marwāri neuter nouns in औँ. They all have an *oblique form* in आ, and are evidently, as regards the formation both of the *direct* and *oblique form*, identical with the first class of the Marāṭhī neuter nouns in कै. E. g., *gold* in Naipālī is सेनूँ; in Sanskrit it is सुवर्ण, in Prākṛit सुवणं or सुवणकं or सुवणथं. The last form सुवणथं becomes in Gaurian सेनोँ, and this changes to सेनूँ, and this to सेनूँ, which last is the present Gujarāṭi *direct form* of the word. Now the genitive of the Prākṛit सुवणथं is सुवणथस्स or सुवणथास or सुवणथाड. The last of these forms changes in Gaurian to सेनथा and this to सेना, which last form, with the addition, apparently, of a final nasal सेनाँ (the meaning of which will be explained afterwards), is the present Gujarāṭi *oblique form* of the word. As another representative example, we may take the Gujarāṭi infinitive करवुँ *to do*, to which the Marwāri infinitive करवौँ corresponds. The derivation of these infinitives has already been explained. They are formed from the Sanskrit participle future passive in तथ्य. The Sanskrit is कर्त्तव्य, in early Prākṛit this is (करितव्यं or) करिथ्वं, in later Prākṛit करिथ्वं or करथ्वं or amplified करवथ्वं,† the last of these करवथ्वं changes in Gaurian to करवौँ, which is the present Marwāri *direct form* of the word,

\* To this class of neuter nouns belong all Marāṭhī diminutives, which are neuter nouns in हँ or डूँ.

† This amplified form करवथ्वं admits a two-fold explanation. Either it may be formed from the form करथ्वं by the usual addition of the affix क (being originally करवकं); or, which is perhaps more probable, the affix तथ्य may have become in





and next to करवूँ or करवुँ, which last is the present Gujarátí *direct form* of the word. Now the genitive of the Prákrit करव्वयं is करव्वयस्स or करव्वयास or करव्वयाह. The last of these changes in Gaurian to करवया and finally (contracted by Gaurian law) to करवा which is the present Gujarátí and Marwáří *oblique form* of the word. The Naipáli neuter nouns in उ are the infinitives. While, e. g., the Gujarátí has करवूँ to do, and the Marwáří करवौँ, the Naipáli has करनुँ.\* The derivation of these infinitives has also been already explained. They are derived from the Sanskrit participle future passive in चनीय. The Sanskrit therefore is करणीयं; in Prákrit it is करणीयं or करणिचं and (broadened) करणचं. This last form करणचं changes in Gaurian to करनाँ (or करनौँ) which is the present *direct form* of the word in the Braj Bhāshā, next to करनु which is the present Alwarí *direct form* of the word, and, finally, to करनुँ, which is the present Naipáli *direct form* of the word. Now the genitive of the Prákrit form करणचं is करणचस्स or करणचास or करणचाह. The last of these becomes in Gaurian करनया or, contracted by Gaurian law, करना, which is the present Naipáli *oblique form* of the word.†

The final nasal which appears in the *oblique form* of Gujarátí neuter nouns in उँ is puzzling.‡ At first sight, one might take it as an inorganic Prákrit, not only अव्वं, but also अव्वयं and (with elision of य), अव्वचं, or अव्विचं (अव्वियं) and (broadened) अव्वचं (comp. vedic चल्त्वा *having gone*, Prák. चलिच्च). In the latter case the process of development of करवूँ is this; Skr. कर्त्तव्यं, Prák. करिच्चिव्विचं or करिच्चवयं = करिच्चवचं = करच्चवचं; Gaur करवौँ = करवूँ = करवुँ. In this case the single व of the Gaurian form is explained by the Prákrit itself. In the other case it must be explained by the Gaurian law according to which a Prákrit similar double consonant is reduced to the single consonant. The Maráthí form करावेँ is contracted either from the Prákrit form करव्वचं (which becomes in old Gaurian करावयं) or from the Prák. form करच्चवयं. (Compare the note at the end of the essay).

\* In St. Luke's gospel the Naipáli infinitive is spelled without the final nasal; thus करनु. This may be mere inaccuracy; or, if it is correct, we must assume that the original final nasal is dropped, as so often in *modern* Gaurian. This view is confirmed by the fact that traces of that Gaurian tendency of dropping the final neuter nasal, appear also in Gujarátí, where, according to Edalji's Grammar, the neuter may end in उ as well as in उँ e. g., gold is both सोनु and सोनुँ.

† This Prák. form करणचं becomes in Gaurian contracted into करणेँ which is the present Maráthí *direct form* of the word.

‡ This final nasal, I think, should be written as an *anunásika*. In Hindí, at all events, all final and medial *Gaurian* nasals are *anunásikas*, but all medial (there are no final nasals of this kind) *Sanskritic* or *Prákritic* nasals are *anuswáras*. I am inclined to think that this rule obtains not only in Hindí, but in all *Gaurian* languages; it certainly does, as far as my limited acquaintance with the pronunciation of the other *Gaurian* languages enables me to judge. In Hindí, *karenge* they will do "is करेँगे not करेँगे; evening is सँझ (Skr. सन्ध्या, Prák. संझा); true is सँच (Skr. सत्य, Pr. सच);



addition for a mere euphonic purpose, or to distinguish the neuter *oblique form* from the (otherwise identical and indistinguishable) masculine *oblique form*, or to assimilate the neuter *oblique form* to the neuter *direct form*. The addition of an inorganic final nasal occurs here and there in Gaurian, as e. g. in the negative particle नाहो or नहो, and in the noun मँह (Skr. मुखम्; Prak. मुहं). The Gujarati Grammar of the Rev. Joseph Van S. Taylor does not admit a neuter *oblique form* with a final nasal at all (see §. 140. 44., pp. 26-29). Even in Mr. Sh. Edalji's Grammar the forms with the final nasal seem to be allowed only as optional (see §. 94., p. 40). Under these circumstances the conclusion appears to be justified that the final nasal is inorganic, and, in fact, an incorrect addition made perhaps for some reason like those suggested above. If, however, the final nasal should be organic, the only solution—by no means satisfactory to my own mind—that I can suggest for the present is this; the Sanskrit neuter nouns in इ and उ insert a nasal (न or ण) before the affix of the genitive; e. g., वारि *water* has Gen. वारिणः; दधि *curds* has Gen. दधिनः; गुरु *heavy* has Gen. गुरुणः; मधु *sweet* has Gen. मधुनः. In Prakrit this use, as an optional one, is extended even to the masculines in इ and उ; e. g., अग्नी *fire* has Gen. अग्निणे (or अग्निस्सु), वात *wind* has Gen. वातणे or वातस्स. This renders it not improbable that perhaps in later or vulgar Prakrit that use was even more extended, viz., also to neuter nouns in अ, so that, e. g., सुवर्ण *gold* would have not only

*saint* is गोसाई (Skr. Pr. and गोस्वामी); *where* is कहाँ (Skr. किंस्थान, Pr. कयाने); *in* is में or मन्ही (Skr. मध्ये Pr. सज्जाम्नि), etc., etc. In all these and like words, the nasal is pronounced by Natives as an anusāsika, not as an anuswāra. They are all *proper Gaurian* words. But in *Prākritic* words, as चंगा *healthy*, लंबा *long*, घंटा *clock*, etc., and in *Sanskritic* words, as सन्ध्या *evening*, संयुक्त *joined*, etc., etc., the nasal is pronounced by Natives as an anuswāra. The difference may, perhaps, be best illustrated by the French and English; *langage, exemple, environs* are pronounced with what Pandits would call the anusāsika, but *language, example, environs*, are pronounced with what they would call the anuswāra. There is an essential difference between the two nasals. The anusāsika is a mere nasalization, which may be given to any sound (commonly to a vowel, but also to consonants), and therefore a mere modification of a sound (वर्णधर्म) but not a distinct sound (वर्ण) itself; while the anuswāra is a distinct and separate nasal sound (वर्ण). See Max Müller's *Lectures on the Science of Languages*, 2nd vol., p. 164. Panini 1, 1. 8. 8, 3. 23. 24. In poetry the distinction of the two nasals is clear and important; the anuswāra makes the preceding vowel *always* long, while the anusāsika has no influence on it whatever. In modern printed books, unfortunately, the distinction between the anusāsika and anuswāra is very rarely and incorrectly observed. Those printed by natives are in this respect generally more exact, than those edited by foreigners. In future, in these essays all modern Gaurian nasals will be represented by the anusāsika. In quotations, however, from the oldest Hifdi, of Chand, I shall, for the present, retain the anuswāra; as there may be some uncertainty as to the date, when the old anuswāra of the Prakrit was changed by the Gaurian into the mere anusāsika.





a Gen. सुवणस्स, but also सुवणणो; and similarly सुवणञ्च a Gen. सुवणञ्चस्स or सुवणञ्चणो. The latter form सुवणञ्चणो might easily originate the Gaurian forms सोनञ्चन, next सोनान, finally सोना. This theory appears to receive some confirmation from the Marwāri where the *oblique form* of the pronouns generally ends in ण or the anuswāra, e. g., *his* is इणरा; it corresponds to the Hindī इसका; and as इस is a Prākṛit genitive इस्स (see Essay 2nd), so perhaps इण is a corruption of a Prākṛit genitive इणो (= Sanskrit इनः).\*

Next we proceed to the Marāṭhī neuter nouns in ई. Their *oblique form* ends in या. E. g., मिरी *pepper* is derived from the Sanskrit मिरिचि; in Prākṛit it is मिरिचि; in Gaurian मिरियं or, contracted, मिरी. The genitive of the Prākṛit मिरिचि is मिरिचिस्स or मिरिचिास or मिरिचिाह. The last of these forms becomes in Gaurian मिरिचिा or (contracted by Gaurian law) मिर्या which is the present Marāṭhī *oblique form* of the word. Again पाणी *water* is derived from the Sanskrit पाणीयं; this becomes in Prākṛit पाणिचं (Pr. Pr. i, 18); and the latter changes in Gaurian to पाणी. The genitive of the Prākṛit पाणिचं is पाणिचिस्स or पाणिचिास or पाणिचिाह, of which the last form changes in Gaurian to पाणिचिा or पाण्या, the present Marāṭhī *oblique form* of the word. Again दही *milk* is derived from the Sanskrit दधि; in Prākṛit it is दधि, or दहिं or दहिकं or दहियं. The last of these forms becomes in Gaurian दहियं, and this contracts into दही. The genitive of the Prākṛit दहियं is दहियिस्स or दहियिास or दहियिाह. The last of these forms changes in Gaurian to दहियिा, and is contracted into दह्या, the present Marāṭhī *oblique form* of the word. Again मोती, *pearl* is in Sanskrit मुक्ता (or मौक्तिकं); in Prākṛit it is मोत्ता or मोत्तिका or (diminutive) मोत्तिकं or मोत्तियं. The last of these forms becomes in Gaurian मोत्तियं, and this contracts into मोती. The genitive of the Prākṛit मोत्तियं is मोत्तियिस्स or मोत्तियिास or मोत्तियिाह. The last of these changes in Gaurian to मोत्तियिा, and is contracted to मोत्या, the present Marāṭhī *oblique form* of the word.

There remain for consideration the Marāṭhī neuter nouns in ए and the Hindī neuter nouns in ओ, औ, ऊ. To these is to be added a Naipālī class of neuter nouns which I have only met with in the *oblique form* ending in या, and the *direct form* of which, I think, would probably end in ओ or perhaps in ऊ. A comparison of the passages, in which the Naipālī *oblique form* in या occurs, shows us the following points concerning them; 1., they are (adjective) nouns of agency; e. g., St. Luke viii. 5. एक बीउ डरन्या निम्बो, i. e., High Hindī एक बीज बानेवाला निकला; again दस अखपि डन्या लाद देउ; i. e., H. H. दस अखफिवाले को देा; again St. Luke xxii. 21. सलाद पक्राउन्या को हात, i. e., H. H. मुझ को पकड़नेवाले का हाथ; again St. Luke xxii. 20, मरा वगन्या रगत को नञा घा रहे; i. e. H. H. मेरे वहनेवाले रक्त के नार्द है; again बिखाउन्या दिन, i. e., H. H. बित्रास का दिन. In the two last examples the *oblique form* is clearly an adjective (qualifying रक्त and दिन); but in the others also it is an adjective, though put by itself and thus used substantively.

\* See, however, a note at the end of this essay.



Further in the first example we have it as a nominative ; in the second as a dative ; and in the fifth as a genitive. 2., These *oblique forms* belong to words which are equivalent to Hindi and Marāṭhī infinitives or gerunds ; this can be seen clearly by comparing the Hindi and Naipālī in the above examples ; compare also Naipālī जन्माउन्या दिन with Hindi जनने का दिन ; and Naipālī करन्या की प्रेरना with Marāṭhī करणा की प्रेरणा, etc. 3, These *oblique forms* are *genitives*. This may be seen from the fact that in the above examples विसाउन्या दिन and जन्माउन्या दिन the *oblique forms* विसाउन्या and जन्माउन्या are equivalent to the Hindi genitive वियाम का, जनने का. Again सुनन्या in Naipālī is = सुननेवाला a hearer ; the plural of it is सुनन्याचेर, lit. hearer's multitude = सुननवाले का घेर. Here सुनन्या in the plural word is clearly in the genitive case. A little consideration will show, that, in fact, these *oblique forms* cannot be anything else but genitives. The words to which they belong are, as we have seen, infinitives, that is, verbal nouns expressing an act. On the other hand, the *oblique forms* themselves are, as we have also seen, adjective nouns of agency. Now the only way of turning a noun expressing an act, into a noun expressing an agent doing that act, is by putting it in the genitive case and supplying a common noun (as man) either expressed or understood. By doing this, the noun of act in the genitive case becomes equivalent to an adjective expressing the possession of the act by the supplied noun which is qualified by the adjective, e. g., सुनना is hearing ; and the genitive सुनने का, if मनुष्य man be supplied, (i. e., सुनने का मनुष्य or Naipālī सुनन्या मानिस), is a man of hearing, that is, a man who hears. Here सुनन का or सुनन्या is equivalent to an adjective. The word मनुष्य need not be expressed, and the adjective may be used by itself as a substantive noun of agency.

Now if these Naipālī *oblique forms* in या must be genitives, they can only be Prākṛit (organic) genitives, modified, of course, by Gaurian phonetic laws. It has been already shown that the Gaurian infinitives or gerunds are identical with the Sanskrit or Prākṛit future participles passive. And it can be easily shown that, according to the phonetic process explained in the beginning of this essay, the Gen. Sing. of the Prākṛit will assume the Naipālī *oblique form* in Gaurian. E. g., to hear (the dhātu) is श्रु ; the Skr. Part. Fut. Pass. of it is श्रवणीय, in Prāk. सुणणीय or सुणणिच्च ; the Prāk. Gen. is सुणणिच्चस्स or सुणणिच्चास or सुणणिच्चाह. The last form changes probably in late Prākṛit to सुणणिच्चा or सुननिच्चा, and finally is contracted in Gaurian (by Sandhi according to Gaurian law) to सुनन्या, which is the present Naipālī form of the word.

This view of the Naipālī nouns of agency in या, is confirmed by the Bangālī, which possesses nouns of agency in अनिया and दवा, as करनिया or करिवा doer (see Sama Churn Sircar's Grammar pp. 149., and 153.)\* To the

\* The forms in आ and दये, as करा and करिय doer are probably, merely contractions of those in दवा and अनिया.





Naipālī सुनन्या *hearer* and the Hindī सुनने would correspond the Bangālī सुननिया; and to the Hindī form (in Braj Bhāshā) सुनवे or सुनिवे or (in Marwārī) सुनवा (the alternative Low Hindī forms of सुनने) would correspond the Bangālī सुनिवा. It is evident that the Bangālī nouns of agency in अनिया and इवा are derived from the two Skr. and Prāk. Part. Fut. Pass. in अनि and तव्य in the sense of the infinitive or of a noun expressing act; and that (as regards form) they are equivalent to the organic genitive of those participles, and thus came to signify the agent. Thus the Part. Fut. Pass. of the root श्रु (Prāk. सुण) to hear is either सुणणीय (Skr. श्रवणीय) or सुणिच्य or सुण्य (Skr. श्रोतव्य). The genitive of the former (सुणणीय or by Sandhi सुणणिच्य) is सुणणिच्यस् or सुणणिच्यस or सुणणिच्यद्, of which forms the last changes in Gaurian to सुननिया, the present Bangālī form of the word. Again the genitive of the other Prākrit form सुणिच्य or सुण्य is सुण्यस् or सुण्यस or सुण्यद्, of which the last form changes in Gaurian to सुनिवा, the present Bangālī form of the word.

The Bangālī nouns of agency in अनिया and इवा (or इये and आ) and the Naipālī nouns of agency in या are, then, Prākrit genitives, or, looked at from the Gaurian standpoint, *oblique forms*; they all require, to complete their sense of agency, the supplement of some common noun (as मनुष्य man). This noun is, however, suppressed and in course of time the real genitive-nature of those nouns of agency was forgotten, and they came to be considered as regular original adjective or substantive nouns;\* and, accordingly, to be declined as if their form were a nominative singular. Hence we meet in Naipālī with a genitive सुनन्या को, Dat. सुनन्या लाइ, as if सुनन्या were the Nom. Sing. e. g., St. Luke xxii. 21.; तर देख मलाइ पक्राउन्या को हात मेरा सँग भौच साथि ह, (i. e., H. H. मेरे पकड़नेवाले का हाथ, etc.); or St. Luke xix. 24. दस चखपि उन्या लाइ देउ (i. e., H. H. दस चखपिवाले को दो). Similarly in Bangālī the nouns of agency may be declined. In illustration of this phenomenon, I may refer to a parallel one in German. Some of the modern German surnames are the Latin genitive of original Christian names; but now they are considered and are declined as regular original nouns in the nominative case. E. g., such names as *Jacobi*, *Georgii* are really genitives to which filius "son" is to be added; *Jacobi* meant originally, the son of Jacob; *Georgii*, the son of George; and they are declined as *Jacobi philosophie*, the philosophy of *Jacobi*, as if *Jacobi* were a nominative. Similarly such names as *Stevens* are really genitives; for *Stevens* is properly *Steven's* son.

\* A very similar phenomenon happened in the formation of the *direct form* of the plural in some Gaurian languages; e. g., Naipālī सुनन्याहेर *hearers* (lit. hearer's multitude) corresponds to Hindī सुननेवाले, where some noun like घेर must be supplied. Thus Naipālī भोकाहेर pl. of भोको *hungry* = Hindī भूके (or complete भूके घेर). This will be fully discussed in a future essay on the inflexional base of the Plural.



We must return now to the examination of the Maráthí neuter nouns in *एँ* and Hindí neuter nouns in *औँ, औँ, ऊँ*. The oblique form of the Maráthí neuter nouns in *एँ* ends in *या*; that of Hindí neuters in *औँ, औँ, ऊँ* ends in *ए*. E. g., *done* in Maráthí is *केलेँ*, oblique form *केल्या*; in old Hindí it is *कियै* or *कोनै* oblique form *कोये* or *कीने*;—*high* is in Maráthí *उबेँ*, oblique form *उब्या*; in (High) Hindí *ऊँचा* (Braj Bháshá *ऊँचै*, old Hindí *ऊँचौ*), obl. form *ऊँचे*;—*doing* is in Maráthí *करणेँ*, obl. form *करण्या*, in Hindí (Braj Bh.) *करनै*, obl. form *करने*, etc., etc. Here we see that the Hindí terminal *ए* always stands in the place of a Maráthí terminal *या*. Now if we put together this fact with the other fact, already stated, that in Gaurian the syllable *या* (or *अय, इय, etc.*) is often contracted into the diphthong *ए*; and also with the fact noticed before, that the Naipáli oblique form in *या* corresponds to the Hindí oblique form in *ए*, (as Naipáli *करन्या* to Hindí *करने*); the conclusion must necessarily be drawn, that the terminal *ए* of the Hindí oblique form of nouns is a contraction of an original termination *या*; and this will apply not only to the termination of the oblique form of Hindí neuter nouns, but also to that of Hindí masculine nouns in *औ* or *आ*; for, e. g., the Hindí masculine noun (*घोड़े* or) *घोड़ा* horse is identical with the Maráthí (*घोडे* or) *घोड़ा*; and the oblique form of the latter *घोड़्या* must also be identical with the oblique form of the former *घोड़े*; and so forth.

The next question is, what is the origin of this original termination *या* of the Gaurian oblique form of neuter nouns in *औँ, औँ, ऊँ, एँ*, and their corresponding masculine nouns. Here the infinitives afford us again a clue to its right interpretation. A Hindí infinitive is, e. g., *करनै* to do; we have seen, it is derived from the Prákrit *करणीञ्च*. Now *करणीञ्च* changes in the Nom. case successively into *करणिञ्च, करणञ्च, करनै* or *करनू*. In the genitive case it changes successively from *करणीञ्चस्स, करणिञ्चस्स* to *करणिञ्चास्स, करणिञ्चास्, करन्या, करने*. And thus by phonetic changes, perfectly regular, natural and easy, we arrive at the direct form in *औँ* and *ऊँ*, and the oblique form in *ए* of the Hindí neuter nouns. And the conclusion we draw, is that the termination *या* of the Gaurian oblique form is a contraction of the termination *इञ्चस्स* of the Prákrit genitive; and this is the case also with all Hindí neuter nouns which are not infinitives. E. g., the oblique form *किये* of the neuter noun *कियै* *done* must represent a Prákrit genitive *किइञ्चस्स* (for *किइकस्स* = Skr. *कृतकस्य*), which must have changed successively into *किइञ्चास्, किइञ्चास्, किइञ्चा, किया, किए* or *किये* (with euphonic *य*). Perhaps at first sight there will seem to be a difficulty in this theory. In the case of the infinitive *करनै* both the direct form in *औँ* and the oblique form in *ए* were traceable to an original Prákrit base in *इञ्च*; on the other hand, as regards all other Hindí neuter nouns in *औँ* or *ऊँ* (as, e. g., *कियै*, etc.) their direct form in *औँ* is derived from a Prákrit base in *अञ्च*; while, if the theory be correct, the oblique form in *ए* must be derived from a Prákrit base in *इञ्च*. In other words the theory necessitates





the assumption that Prákrit bases which in the nominative case ended in च्य changed or deteriorated in the genitive case into इच.\* To illustrate this, let us take again the case of कियेँ *done*. Its *direct form* represents a Prákrit nominative किदकं, which changed successively into किच्य, किच्येँ or किच्येँ, कियेँ. The *oblique form*, as we have just seen, postulates a Prákrit genitive किदिकस्स, that is, the Prákrit nominative किदकं or किच्यं with a base in च्य, has a genitive किदिकस्स or किदच्यस्स with a base in इच. Now though this change may surprise at first sight, there is really nothing irregular or extraordinary in it. It is a phenomenon which under certain phonetic circumstances regularly occurs. I have had occasion already to notice that the base termination च्य (चक) has a tendency to degenerate into इच (इक) or उच (उक). Thus we have in the Mirchchhakati केरिच्य besides केरच्य; and विदुच्यो for इचिकः, etc.† But the change has become an absolute rule in the feminine. Bases which in the masculine end in चक (च्य) change always in the feminine into a base ending in इक (इच), and this rule obtains already in Sanskrit; e. g., Skr. masc. बालकः *boy*, but fem. बालिका *girl*; Prákrit masc. बालच्यो, fem. बालिच्यी, etc. The reason of this change, probably, is that, as the ultimate in the feminine is heavily weighted (by changing च to च्या), the penultimate is lightened (by changing च्य to इ). Now under exactly the same circumstances the same change evidently takes place in the later or vulgar Prákrit declension of bases in चक. Take again the example of किदक. The Nom. sing. is किदको. The Gen. किदकस्स or किदकास or किदकाइ or किदका. At this stage, I think, the change must have taken place; the form किदका would correspond exactly to an original feminine form बालका; and as the latter changed to बालिका, so the former changed to किदिका, and for the same reason; because the ultimate had become च्या for च्य, the penultimate was shortened to इ for च्य. Next किदिका or किदिया changed to किया; and this to किए or किये. This theory applies equally to Hindí masc. nouns in च्यो or च्या. Take, e. g., घोड़ा *horse*. It is derived from the Prákrit base घोडक or घोडच्य, which in the feminine becomes घोडिका or घोडिया. The Nom. Sing. of the Masc. is घोडको or घोडच्यो, which in Gaurian is contracted into घोड़े and changed to घोड़ा. The Gen. Sing. of the masc. is घोडकस्स or घोडच्यस्स, which changes successively to घोडचास, घोडचाइ, घोडचा, घोडिया, घोड़ा, which is the present Maráthí *oblique form*, and finally to घोड़े, which is the present Hindí *oblique form* of the word.

There is another explanation possible of the Hindí *oblique form* in ए which is not open to the difficulty just now discussed. But it is open to

\* It should be noted, however, that, as explained previously, the Hindí infinitive termination योँ or ऊँ requires a change of the original Prákrit termination इच्यं to च्यं; so that, practically, there is no difference in this respect between Hindí infinitives and other Hindí neuter nouns.

† See also some more examples in the note 5 on page 105.



other difficulties ; not only to *one*, but several, which moreover are more serious and much less capable of being surmounted. The explanation is this. The Gaurian diphthong ए can be not only a contraction of या, but also of अया. If we suppose the latter to be the case in the Hindī *oblique form* in ए there is no necessity of assuming a change of the Prākṛit base termination अय into इय. In this case the *oblique form* in ए (e. g., किये) is to be explained thus ; the Prākṛit genitives किकस्स or कियस्स change to कियस्स to किययाह or कियया. At this stage, as I have shown on former occasions, the word passed into Gaurian, and, according to Gaurian rule, either Sandhi must take place, or a euphonic letter must be inserted, to prevent hiatus. The question is, which of these two alternatives happens. According to the present theory we must assume that the euphonic letter य was inserted. Hence we get कियया which finally changes to किर or किये. So far there is no difficulty ; on the contrary it obviates the difficulty involved in the other theory of changing the base in अय into one in इय. But there is positive evidence to show that of the two alternative cases just now mentioned, not the one here assumed (*viz.*, insertion of य), but the other (of Sandhi) took place in reality. In Marwāṛī, namely, the *oblique form* is not किये but किया, and what this fact indicates is this, that in the form कियया when it passed into Gaurian, not the insertion of a euphonic consonant य, but *Sandhi* of the hiatus-vowels (अ and या) took place ; *viz.*, कियया was contracted into किया or (with euphonic य) कियया. Evidence of the same fact is the Naipālī and Gujarātī with their *oblique form* in या, which, as I have already shown, is the contraction of a terminal form अया, e. g., Gujarātī सोण gold, obl. form सोना ; equivalent to Prākṛit Nom. sing. सुवण्य and Gen. sing. सुवण्यस्स, or सुवण्यस, or सुवणयाह, or सुवणया, and contracted सोना. It follows from all this that if the Prākṛit base in अय remained unchanged in the process of transition of the Prākṛit into Gaurian, the termination of the Prākṛit genitive was contracted by *Sandhi* into या, and not changed, by the insertion of a euphonic य, into अया ; and hence the origin of the termination ए must be differently explained. And the explanation is, that there was an alternative case ; in some places the Prākṛit base in अय remained unchanged, and gave rise to the *oblique form* in या ; in other places the Prākṛit base in अय was weakened to इय, and thus gave rise to the *oblique form* in ए or ए. E. g., the base सुवण्य gold remained unchanged in Gujarātī and its genitive सुवणया (for सुवण्यस्स) was contracted to सोना ; while in Hindustān, it was weakened to सुवणिय, and its genitive सुवणिया was contracted to सोन्या or सोने.

The objection explained in the preceding remarks is only one of the reasons against the derivation of the termination ए of the Hindī *oblique form* from an original termination अया. I shall now proceed to state a few more reasons against it, in order to remove as much as possible, all doubts as to the truth of the theory, that the termination ए stands for या, and this for इया (= इका):





2. A second reason is this. To the Hindí *oblique form* in ए the Maráthí *oblique form* in या corresponds and both must have an identical derivation. Now though ए may be explained as a contraction of अया in Hindí, this cannot be done with Maráthí या. In Maráthí the initial consonant य् of the syllable या is always compounded with the final consonant of the base. There does not seem to be any trace that it may be separated from the final consonant of the base, and pronounced as अया; e. g., the *oblique form* of घोड़ा *horse* is घोड़ा, but not घोड़ा. In the case of the *oblique form* in वा, the *Manual* admits an alternative form in अवा; e. g. तार *ship*, obl. form तारवा or तारवा; but in the case of the *oblique form* in या neither the *Manual*, nor Dadobas's Grammar, nor any other grammar that I have consulted, admits an alternative form in अया. If it had existed at all, it would surely have been mentioned by one or other of the grammars. Even the alternative form अवा is doubtful, seeing that it is only mentioned by the *Manual*; but the alternative अया, it appears, does not exist at all. Now this fact would be very improbable on the supposition that the form in अया is the original one, out of which the other (the present) form in या arose by the suppression of the medial अ. Such a suppression of a medial अ, indeed, is not uncommon in Gaurian; but whenever it occurs, both forms remain equally current, the original one without the suppression and the derived one with the suppression; and at all events, whatever the pronunciation may be, the spelling wherever accuracy is observed, follows the origin of the word. Thus in Hindí, though *he knows* is pronounced *jántá* it is always by correct Nágari writers spelled *jánatá* (i. e., जानता, not जान्ता). Now neither of these is the case with the Maráthí *oblique form* in या; it is always spelled with the य् compounded with the preceding consonant, and always so pronounced. Even if we should rely on the analogy of the *oblique form* in वा, it would not help us out of the difficulty. For, as I have shown formerly when treating of the Maráthí neuter nouns in ऊँ, the case is just the reverse with the obl. form in वा. There the original form is that in वा and the derived form is that in अवा, i. e., with the insertion of a euphonic अ to prevent the necessity of pronouncing a compound consonant; such insertion being also not uncommon in Gaurian. If, therefore, the analogy of the *oblique form* in वा proves anything, it proves the very thing demanded by my theory; viz. that the form in या is the *original form*; and if a form in अया should exist, it could only be a vulgar corruption of the form in या with inserted अ. Further, it should also be noted, that even if two alternative forms in या and अया should exist, this fact, though it might allow the opposite theory, would in no way contradict my theory; (for the form in या, as just shown, might be the original one); while if only *one* form in या exists, this fact is altogether fatal to the opposite theory, but accords entirely with my theory. It seems certain, then, that, at all events in Maráthí, the termination या of the obl. form is original, and not reducible



to a form in *य्या*. But if this is the case, the Hindí corresponding termination *ए* must also be a contraction of an original termination *या*, and not *य्या*. And further it follows, that both in Maráthí and Hindí, the Prákrit base from which this oblique form in *या* and *ए* is derived, must have ended in *इया*.

3. In Maráthí there is one exception to the rule that the initial consonant *य* of the obl. form termination *या* is compounded with the final consonant of the base. It is the gerund in *यावे*. According to both the *Manual* (see § iii, III.) and Dadoba's Grammar (see §. 463.) the *oblique form* of these gerunds does not end (as we should expect according to the analogy of other neuter nouns in *ई*, as *करणे* [obl. form *करण्या*], *उढे* [obl. *उढ्या*]) in *याया*, but in *यावया*; e. g., *करावे* to *do*, obl. form *करावया* (not *कराया*), *जावे* to *go*, obl. form *जावया* (not *जाया*). Here the alternative form in *या* does not exist at all. Now this exception proves the rule extremely well. It has been observed several times already that these Gaurian gerunds or infinitives in *यावे* are derived from the Skr. and Prák. Part. Fut. Pass. in *तय*, and it has been shown in a previous place, that the Sanskrit termination *तय* may become in Prák. *अवयं*; thus Skr. *कर्तव्यं* becomes Prák. (*करिअव्यं* or) *करिअवयं* or *करअवयं*. The genitive of the latter form is *करअवयस्सु*, which changes to *करवयास* or *करअवयाह* or *करअवया*. Here the form passes into Gaurian which, according to its law, contracts the form, by Sandhi of the hiatus-vowel, into *करावया*; and thus we obtain the present Maráthí *oblique form*. Now let it be noted that here the semivowel *य* is not a euphonic insertion of the Gaurian, but an original, integral part of the word, taken over from the Prákrit. The case would be very different with any other neuter nouns, as e. g., *उढे* *high*. In Prákrit this neuter would be *उढअं*, which in Gaurian would become *उढयं*; the genitive of the Prákrit *उढअं* would be *उढअस्सु* or *उढअयास* or *उढअयाह* or *उढअया*, in which last form it passes into Gaurian, and now if we are to obtain the form *उढया*, we must assume that the Gaurian inserts a euphonic *य*. This, as we have seen, is not the case; the Gaurian, on the contrary, makes Sandhi under these circumstances; we should obtain the form *उढा*. We see, therefore, that the reason why the *oblique form* of the Gerund in *ई* differs from the *oblique form* of other neuters in *ई*, is this, that the consonant *य* of the former is organic, while the *य* of the other neuters would be an inorganic euphonic insertion. But, as I have proved by examples from the Gujarátí, Naipálí and Marwáří, it is contrary to the habit of Gaurian to insert *य* in this particular case; it prefers to make Sandhi. Hence the difference under discussion proves, that the oblique form in *या* must be explained in an altogether different way, and the theory advanced by me, that it is the modified genitive form of a Prákrit base in *इय* fulfils all the requirements of the case.

4. The *oblique form* in *या* is not altogether peculiar to Maráthí neuter nouns in *ई*, but it belongs also to the Maráthí neuter nouns in *ई*. Now



the *oblique form* of the latter originated, as I have shown formerly, from the genitive of Prākṛit bases in इच्च; and, as there is no reason to suppose that the *oblique form* in या of the neuter nouns in एँ differs in nature from it, the former must also be derived from the genitive of Prākṛit bases in इच्च. E. g., दही curds has the oblique form दद्या, i. e. दहिद्या = दहिद्याह = दहिद्यास = दहिद्यस्स (दधिकस्य), which is the Gen. sing. of a base in इच्च. Similarly सोन्या, the obl. form of सोने gold, must be सोनिया = सुवणियाह = सुवणियास = सुवणियस्स = (सुवणिकस्य), i. e., the Gen. sing. of a base in इच्च.

There can be little doubt, then, I think that the Marāṭhī *oblique form* in या postulates a Prākṛit base in इच्च, and so also the Hindī *oblique form* in ए, which is evidently identical in nature with the former. And I may here add, that this is true also of the Panjābī *oblique form* in ए which is identical in nature and form with the Hindī obl. form in ए. In consequence, it must be assumed that while the *direct form* in एँ, औँ, औँ, ऊँ, of neuter nouns is derived from the nominative Sing. of a Prākṛit base in अच्च, the *oblique form* in या of the same nouns is derived from the genitive Sing. of a Prākṛit base in इच्च, into which the Prākṛit base in अच्च degenerated in the course of transition into Gaurian, in consequence of the final of the word having become heavily weighted in the genitive.

5. Moreover in Hindī, there is one instance which affords us positive evidence of the fact, that the obl. form termination ए is equivalent to या, and not to अया. The *oblique form* of the *proximate demonstrative pronoun* in the Braj Bhāshā, is या; on the other hand in Gaṇwārī it is ए. E. g., *in this* is in the Braj Bhāshā यामेँ, in the Gaṇwārī एमे; *of this* resp. is याको and एकर; *to this* याकौँ and एको, etc. There can be no doubt that the Gaṇwārī ए is merely a contraction of the Braj Bhāshā या. This is easily confirmed by a further comparison of the Gaṇwārī and the Braj Bhāshā. It has been already remarked that in Gaurian या is often contracted to ए, वा to ओ, य to इ, and व to उ. Now the Braj Bhāshā *oblique form* of the *distant demonstrative pronoun* is वा and this, in the Gaṇwārī, is represented by ओ; e. g., Braj Bhāshā has वाको, वाकौँ, वामेँ; but the Gaṇwārī ओकर, ओको, ओमे. Again while the Braj Bhāshā has यहाँ here, वहाँ there; the Gaṇwārī has इहाँ and उहाँ.

There is still a point remaining for settlement concerning these neuters; viz. the Prākṛit original of the final एँ of the *direct form*. The Marāṭhī final एँ corresponds to the Hindī final औँ, औँ, or ऊँ (High Hindī आ); e. g., Marāṭhī सोने gold is equal to Low Hindī सोनैँ or सोनूँ (H. H. सोना); Mar. केले done is = Hindī कियेँ (H. H. किया); Mar. करण doing = Hindī करनैँ or करनूँ (H. H. करना), etc. The terminations औँ, ऊँ, there can be no doubt, are the modifications of the Prākṛit terminal form अच्च. It is, therefore, *primā facie* probable, that the Marāṭhī एँ is also a modification of the Prākṛit termination अच्च into अय by inserting य, which अय afterwards contracted into एँ. But this is merely Gaurian law; and the existence of



neuters in अयं in early Gaurian has been already amply proved. But there are two circumstances, which would seem to indicate a different derivation of the Maráthí final एँ; viz. from a Prákrit final इयं, which in early Gaurian would become इयं (with insertion of euphonic य्). Those two circumstances are; 1. that the original of the termination एँ of the Maráthí gerunds in येँ (or नेँ) is the Prákrit termination इयं, (e. g., करणे *doing* is contracted from Prákrit करणियं), and that by parity, all Maráthí neuters in एँ are derived from Prákrit neuters in इयं. 2, that as the *oblique form* in या of these neuters in एँ is derived from the genitive of a Prákrit base in इयं; if we derive the *direct form* in ए from the nominative Sing. of a Prákrit base in इयं, all difficulty attending the derivation of the oblique form is removed. Though it must be admitted, that these reasons are of considerable force, yet I think, the reasons which decide for the other view outweigh them. These are, 1., that it equalizes the derivation of the neuter nouns which are common to both Maráthí and Hindí; while the Prákrit termination अयं (old Gaurian अयं) would explain easily the Gaurian neuters ending in औँ, ऊँ, as well as एँ, the Prákrit termination इयं would only explain the Maráthí ending एँ, but not the Hindí ending औँ or ऊँ, for which we would have to keep the Prákrit termination अयं. 2., There is the Maráthí neuter termination ईँ which, to a certainty, is contracted from the Prákrit neuter termination इयं; if the Maráthí neuter termination एँ be also taken as a contraction of the Prákrit termination इयं, there is no intelligible reason, why in some words the ending इयं should have been contracted into ईँ and in others again into एँ. On the other hand, there is a very good reason for this difference, if we suppose that originally neuter nouns ended partly in अयं, partly in इयं; and those ending in अयं contracted their final into एँ, while those ending in इयं contracted it into ईँ. E. g. सोने *gold* is contracted from the Prákrit सुवण्णयं, old Gaurian सोनयं; but दही *curds* is contracted from the Prákrit दहिण्यं old Gaurian दहियं.—3., Again to anticipate a point which will be fully gone into in the next essay; to the Maráthí neuters in एँ correspond Maráthí masculines in आ; now according as the Maráthí neuter in एँ is derived from an original form in अयं or इयं, the masculine in आ must also be derived from an original form in अयो (अयो) or इयो (इयो); but the form अयो yields much more readily the contraction आ (old Maráthí ओ), than the form इयो, the latter could in the first instance give us only the contracted form यो; and though there is perhaps no absolute difficulty in assuming a contraction of यो to ओ (as in उयो to ओ *high*),\* still it is not so easy and natural as the

\* In illustration might be adduced the High Hindí participle past passive in आ, for the Braj Bháshá ones in औ; as H. Hindí कहा, for Braj Bháshá कही. Here कहा may have arisen by the elision of य् in कया. But its origin may also have taken place in a different manner. The corresponding participles in Maráthí end in अला, which stands for the Skr. ending इत; e. g. *read* is पढला, the Skr. is पठितः, the



contraction of च्यो to यो (as in उच्यो to उयो).—4., while on the theory of the Prākṛit terminal form च्य being the original of the Marāṭhī terminal form एँ, the two objections to this theory (noticed above) can be reconciled; on the other hand, on the theory of the Prākṛit termination इच्य being the original, the three objections to this theory are incapable of being surmounted. As regards, namely, those two objections, it may be said: 1, that the ending एँ of the Marāṭhī gerunds in ऐँ (or नेँ), though, no doubt, ultimately derived from a Prākṛit termination इच्य or इच्य may well be proximately derived from a Prākṛit termination च्य. For it has been shown already that the Prākṛit Part. Fut. Pass. affix अणोच्य may change to अणोच्य (or अणियं) or अणच्य (or अणयं).<sup>\*</sup> And this derivation

Prāk. (with the amplificative affix क) पढिदको or पढिदयो; in the more vulgar and broad Prāk. dialect it must have become पढदयो, this changed to पढडयो and finally to पढलयो; in Gauṛian it was contracted to पढलो or पढला. We may well suppose that the affix इत was also in Hindī sometimes broadened in अत. Hence Skr. कथित would become in Prāk. कहिदको or कहदको. The latter form would change to कहच्यो or कहयो or कहो or कहा which last is the High Hindī form of the word. The former form would change to कहिच्यो or कहियो or कह्यो or कह्यो which last is the Braj Bhāshā form of the word. The extreme improbability of the Prākṛit termination इच्य being contracted in Gauṛian first to यो, next to यो or या is illustrated by the word मूढिक mouse, which becomes in Gauṛian मूसा or मूसो. Here the Gauṛian termination या or यो might be thought to be a contraction of the Sanskrit termination इकः or Prākṛit इया. But if we turn to Prākṛit, we find the following sūtra in Subha Chandra's grammar, अपथिष्टिवीप्रतियुद्धिभीतकहरिद्रायाम् (II, 47, corresponding to Hema Chandra I, 88.); that is, the first इ of the words mentioned in the sūtra changes to अ; hence the Skr. मूढिकः becomes in Prākṛit मूसयो, and this, now, changes in Gauṛian to मूसो or मूसा.

\* The insertion of a euphonic य, which, as has been remarked in another place, has become one of the phonetic laws of Gauṛian, is not altogether unknown to the later Prākṛit. Thus Hema Chandra in his Prāk. grammar gives the following sūtra अवर्षा ययुतिः I, 180, in Subhachandra the corresp. sūtra is ययुतिरः III, 5, and the commentary thereon कगादिलोयेऽवर्णात् परो योऽवर्णोऽवशिष्यते तत्र लघुप्रयत्नतरययुतिर्भवति, which means, that if a consonant which is preceded by अ or आ and is followed by अ or आ is elided, a euphonic य is inserted; some examples given are सयडं (for शकटं), तित्थयरो (for तीर्थकरः), रययं (for रजतं), etc. This sūtra limits the practice to a particular case. But in Gauṛian there is no limitation; and there are not wanting evidences that even in later Prākṛit the limitation was not strictly observed. Thus Hemachandra himself in his commentary to sūtra I, 14, of his own grammar makes the following remark बडलाधिकारादीपत्स्युष्टरययुतिरपि, that is, by the rule of variety the semivowel य may be slightly pronounced, and he gives among others as an example सरिया for Skr. सरित्. Also in the previously mentioned sūtra he mentions as an exception पियद for Skr. पिबति. In all MSS., in my possession, both of his grammar and that of Hema Chandra the euphonic य is generally inserted in the Prākṛit examples; while in the MSS. of Vararuchi's Prākṛit Prakāsha it is never met with.





is rendered almost certain by the fact, that the Hindi equivalent of the Maráthí gerundial ending अणे° is अनै° or अनू° which can only have arisen from a Prákrit ending अणञ्च. Thus the Maráthí करणे° corresponds to the Hindi करने° or करने°. Now the *proximate* original of the Hindi form करने° or करने° must have been a Prákrit form करणञ्च; hence it is probable that it was also, in the form करणञ्च, the original of the Maráthí form करणे°; though the *ultimate* original of both forms (Hindi as well as Maráthí) was the Prákrit form करणीञ्च or करणिञ्च. Moreover the word पाणी° *water*, which is a contraction of the Prákrit form पाणिञ्च or पाणीञ्च,\* shows plainly, that if the Prákrit termination अणीञ्च was modified to अणिञ्च or अणिञ्च, it changed its final in Gaurian according to rule into ई°, and not to ए°; and that, therefore, in order to explain the change of the ultimate Prákrit form अणीञ्च to अणे° in Maráthí, we must assume, that first it was modified to अणञ्च अणञ्च and afterwards अणञ्च to अणे°.—2., It has been proved already that there is nothing extraordinary or irregular in a change of a Prákrit base in अञ्च in the Nom. Sing. to a base in इञ्च in the Gen. Sing.

The conclusion, then, which we must draw, appears to be this, that the termination ए° of Maráthí neuters is in all cases of substantives (as सेने°), adjectives (as उबे°), and participles (as केले°), and probably in the case of gerunds (as करणे°) a contraction of the old Gaurian termination अञ्च and the Prákrit termination अञ्च.

In order to complete the subject of the neuter inflexional base, I may add, that in the modern literary form of the Hindi-class Gaurian languages (excepting Gujarátí) the final *anunásika* of the neuter *direct form* of the inflexional base is always dropped. Thus in High Hindi we have करने for the Braj Bháshá करने° and Alwarí करने°.† Again compare पाणी° *water* with Maráthí पाणी°, and High Hindi अलू° *potatoe* with Maráthí अलू°; this is but the legitimate conclusion of a regular phonetic process affecting the final nasal. In Sanskrit we have final ऋ; in Prákrit final ऋ is toned down to the *anuswára*; in Gaurian the *anuswára* is attenuated to the *anunásika*; and in modern literary Gaurian finally the *anunásika* is dropped. The result of this process is the disappearance of the neuter gender in the modern literary Hindi-class Gaurian languages (excepting Gujarátí); for by the dropping of the final *anunásika* the neuter and the masculine become identical and indistinguishable in form; and hence were also not distinguished in gender.

It was remarked above when treating of the Maráthí neuters in क° that the formation of the final क° took place, as it were, on the confines or the debatable ground between Prákrit and Gaurian; and that, therefore,

\* See Hema Chandra I, 101. Subha Chandra II, 59.

† Similarly the Dative post-position in High Hindi is को for Braj Bháshá को°.





neuter nouns in ऊँ may be considered and treated as well as *Prákritic* as *Gaurian proper*. This remark applies with equal force to neuter nouns in ईँ. In Maráthi these neuter nouns in ऊँ and ईँ are *generally* considered as *Prákritic*, and treated accordingly; *i. e.*, have an *oblique form* (as पाणी *water*, obl. form पाण्या; अलू *potato*, obl. form अल्ला). But in the *Hindí-class* Gaurian languages, they are always considered as *proper* Gaurian and treated accordingly, *i. e.*, have no *oblique form* (as *Hindí*, *Gujarátí*, etc. पाणी *water*, अलू *potatoe* remain unchanged throughout the declension).

The next essay (No. V) will be devoted to the examination of the inflexional base of the masculine and feminine nouns with reference to the proof of these two points; that the *oblique form* is identical with the *Prákrit* genitive, and that the termination आ or आ of the *direct form* (of masculine nouns) is owing to its original being the termination of a *Prákrit* base, formed by means of the pleonastic affix क. This will also afford an occasion to examine an old *Hindí oblique form* in दि or द and the inflexional base of the pronouns.



## APPENDIX.

*A table exhibiting the various stages of phonetic decay of the nominal forms in the development of Gaurian from Prakrit and Sanskrit.*

A. DIRECT FORM.									
Sanskrit.			Theoretical or (vulgar Skr.?)	Prakrit.		Gaurian.			
Base.	Nom.	Sing.		Early.	Late or vulgar.	Old.	Modern.		
सुवर्णं	सुवर्णम्	सुवर्णकम्	सुवर्णचं	सोवर्णचं	{ सोनो (or सोनवं?) सोनयं.....	सोनो B. सोना H. सोनं G. सोने M.			
पिण्ड	पिण्डम्	पिण्डकम्	पिण्डचं	पिण्डचं	पिणो (or पिण्वं?)	पिणो B. पिणू M. पिण्ना H.			
मुक्ता	मुक्ता	मुक्तिकम्	मुक्तचं	मुक्तचं	मुक्ती	मुक्ती M. मुक्ती H.			
स्पर्श	स्पर्शः	स्पर्शकम्	स्पर्शचं	स्पर्शचं	फांसुवं or फांसो	फांसू M.			
पिटक or पेटक	पिटकम् or पेटकम्	पिटकम् or पेटकम्	पिटचं or पेटचं	पेटुचं, पेटुचं	पेलुवं or पेलो	पेलू M.			
दधि	दधि	दधिकम्	दधिच	दधिचं	दधिचं	दधो M. दही H.			
अशु गडु	अशु गडु	अशुकम् गडुकम्	अशुचं गडुचं	अशुचं गडुचं	अशुवं or अशो गलुवं or गलो	अशू M. अशू H. गलू M.			





Sanskrit.			Theoretical or (vulgar Skr ?)	Prākṛit.		Old.	Modern.
Base.	Nom.	Sing.		Early.	Late or vulgar.		
Gerund in कर्णे							
कर्णीय	कर्णीयम्	—	कर्णीचं	कर्णिचं or करणचं	कर्णियं or { करणयं करनी (करनवं?)	कर्णे M. कर्णा B. कर्णू A. करनु N. कर्ना H. पाणो M. पानी H. (water) पीणे पोनो B. पीनू A. पनु N. पोना H. } drink.	
पानीय	पानीयम्	—	पाणीच	पाणिचं or पियणिचं <sup>6</sup> or पियणचं	पाणियं पीणयं पोनो (पीनवं?)		
Gerund in कर्त्तव्य							
कर्त्तव्य	कर्त्तव्यम्	कर्त्तव्यम्	कर्त्तव्यं or कर्त्तव्यं <sup>2</sup> or कर्त्तव्यं	कर्त्तव्यं { कर्त्तव्यं or कर्त्तव्यं कर्त्तव्यं	कर्त्तव्यो Mr. (कर्त्तव्यं?) कर्त्तव्यो (कर्त्तव्यं?) कर्त्तव्यं	कर्त्तव्यो B. कर्त्तव्यो A. कर्त्तव्यो B. कर्त्तव्यो A. कर्त्तव्यो G. कर्त्तव्यो M.	
Miscellaneous							
मिरिच	मिरिचम्	—	मिरिचं	मिरिचं	मिरिचं	मिरि M. जं M. जुचो B. जुचा H. कुङ्कुमं M.	
युग	युगम्	—	जुचं	जुचं	जुवं or जो जुचो (or जुचवं?) कुङ्कुमं कुङ्कुमं		
कुङ्कुम	कुङ्कुमः	{ युगकम् कुङ्कुमम्	जुचं कुङ्कुमं	जुचं कुङ्कुमं			



## B. OBLIQUE FORM.

सुवर्ण	सुवर्णस्य	सुवर्णकस्य	सुवर्णश्चस्य, or सुवर्णश्चास or सुवर्णश्चाह (सुवर्णश्चाह?)	सोणश्चा or सोणश्चा	सोना सोन्या	सोना G. सोन्या M. सोने H.
पित्त	पित्तस्य	पित्तकस्य	पित्तश्चास or पित्तश्चाह	पित्तश्चा or पित्तश्चा	पित्ता पित्ता	पित्ता M. पित्ते H.
मुक्ता	—	मोक्तिकस्य	मोक्तश्चास or मोक्तश्चाह	मोक्तश्चा	मोत्या	मोत्या M.
स्पर्श	स्पर्शस्य	स्पर्शकस्य	फांसश्चास or फांसश्चाह	फांसश्चा or फांसुश्चा	फांसा	फांसा M.
पिटक *or पेटक	पिटकस्य or पेटकस्य	पिटकस्य or पेटकस्य	पिटकश्चास or पेटकश्चाह	पेटकश्चा or पेटकुश्चा	पेत्ता	पेत्ता M.
दधि	दधिनः	दधिकस्य	दधिकश्चास or दधिकश्चाह	दधिकश्चा	दद्या	दद्या M.

Bases in ३

Bases in ४





Sanskrit.		Theoretical or (vulgar Skr. ?)	Prākrit.		Gaurian.	
Base.	Nom. Sing.		Early.	Late or vulgar.	Old.	Modern.
अथ गडु	अथुणः गडुनः	अथुकस्य गडुकस्य	अंत्तुआस or अंत्तुआह गडुआस or गडुआह	अंत्तुआ गडुआ	अंत्ता गल्ता	अंत्ता M. गल्ता <sup>1</sup> M.
करणीय पानीय कर्मव्य	करणीयस्य पानीयस्य कर्मव्यस्य	— — करितव्यस्य	करणोआस or करणोआह पानीआस or पानीआह करिव्यआह — or — करव्यआह	करणिआ पाणिआ or पियणिआ करिव्यआह or करिव्यआह करिव्यआ or करवथाह or करवथाह करवथा करवथा	करणा पाणा or पोणा करिवया करिना करवया करवा करावया	करणा M. करने H. पाणा M. (water) पोणा M. पीने H. (drink) करिवे B. करिवा MR. करवे B. करदा MR. करावया M.

Bases in

Gerunds in अनोय and नव





Miscellaneous.					
मिरिच	मिरिचस्य	—	मिरिचास or मिरिचाह	मिरिचा	मिरिचा
युग	युगस्य	{ युगस्य or युगकस्य }	जुय्याह जुय्याह	जुय्या or जुय्या	जुय्या
कुंकुम	कुंकुमस्य	—	कुंकुमास or कुंकुमाह	कुंकुमा	कुंकुमा
					कुंकुमा M.



## NOTES TO APPENDIX.

*Note 1.*—M. = Maráthí; B. = Braj Bháshá; A. = Alwar dialect; N. = Naipáli; G. = Gujaráti; Mr. = Marwári; H. = High Hindí.

*Note 2.*—The Prákrit grammars allow only those forms of this gerund, which change the compound consonant च into च्च (see Pr. Prák. VII. 33); as करिचच्च or करेचच्च, to which Hemachandra adds also करिच्च and करेच्च. But the Gaurian dialects seem to postulate two more Prákrit forms of that gerund; viz. such as change the comp. cons. च into विय or वय; and such as change the connecting vowel इ into अ (see my note on p. 83, 84); e. g., besides करिचच्च also करिचवियं or करिचवयं or करच्चवयं. Now since writing the present essay, I have found that my conjectures are supported by the Páli of the rock inscriptions; e. g., in the Dhauli inscription occurs the form कटविय and in the ordinary Páli कानच्च or कनच्च besides करितच्च (see Dr. Muir's *Skr. Texts*, Vol. II., p. 113, and Dr. Mason's *Páli Grammar*, p. 90). This is all the more important, as, no doubt, the Páli of the inscriptions represents much more closely the *spoken* language than the Prákrit of the grammars, which may have sacrificed sometimes the established but irregular forms of popular usage to the uniformity and regularity of a fancied rule.

*Note 3.*—The forms कुंकुचं and कुंकुचा I have given on the analogy of two sūtras in Śubha Chandra's Prákrit Grammar (Adhy. I, Páda I, sūtra 14. 15.): इत् अणुनासिकम् ॥ i. e., whenever the technical letter ङ is added, an anunásika must be pronounced; and मोङ यमुनाचामुण्डातिमुक्तककामके ॥ i. e. in the (four) words yamuná, chámundā, atimuktaka, kāmuka स् must be pronounced as an anunásika; e. g., जउँणा, काउँचो, etc. Perhaps we may assume, that in later and vulgar Prákrit the elision of consonants generally was compensated by the pronunciation of anunásika; and this conjecture might afford us another explanation of the puzzling final anunásika of the neuter *oblique form* in Gujaráti and Panjábí. E. g. if the elision of क् should be compensated by anunásika, we should have the Gen. सुवर्णञ्चाद् for सुवर्णकस्य; and सुवर्णञ्चाद् would change to सेणञ्चा, and finally to सेना. This explanation, perhaps, appears less forced than that given above in the text p. 85, 86.

*Note 4.*—In the text (see above p. 60) I have explained that the Prákrit Genitives in च्चाद्, as सेणञ्चाद्, drop the final ङ, and change to सेणञ्चा. In support of this theory compare the remarks of Beames in his *Comp. Gram.* of the Modern Aryan languages of India p. 259., which I have received in the meanwhile. The only example given there is *Skr.* कर्पास which in Panjábí is कपाद्, but in Oríya कपा. A still more apposite evidence of my theory has since occurred to me in the Ganwári (Hindí) *oblique form* of the *near demonstrative pronoun* which is ए or एद् and corresponds to the Braj



Bhāshā form या or याहि. The original, namely, is the pronominal base इम which is defective in Sanskrit, but in Prākṛit has a complete declension. The Gen. Sing. of इम is in Prākṛit इमस्स or इमास or इमाह, in which, in later Prākṛit, the स becomes changed to anunāsika, thus ईयाह (see note 3). Finally the form ईयाह becomes in Gaurian contracted (by sandhi) to एह which is Ganwāri, or to याहि which is Braj Bhāshā. At the same time it is manifest, that the alternative forms ए and या must be contractions of an original Prākṛit form ईया (with apokope of ह). Similarly the *oblique form* of the second personal pronoun in the Ganwāri is तो or तोह, in Braj Bhāshā तो or तोहि. The original of these forms is the Prākṛit genitive तुमस्स (nom. तुमं), or तुमास or तुमाह or (in late Prākṛit) तुँयाह or तुँया. Of the two last forms the former तुँयाह is contracted to तोह; the later तुँया to तो. And so forth; the pronouns offer many more illustrations.

*Note 5.*—The Marāthī गळूँ *boil*, might be also derived from the Sanskrit गण्ड; which might be preferable, as the Skr. गण्ड means *boil*, while गडु does not exactly. In illustration of the change of the Skr. ण्ड to ल, I may quote the word कुष्माण्डी which according to Subha Chandrá sūtra II, 80. changes in Prākṛit to कोहंडी or कोहली. If this derivation be correct, then गळूँ is another example of the change of the termination अक to उक; for its proximate original will, then, be गण्डुकं. I may here add a few more examples of the change of the termination अक to इक or उक in Prākṛit which have occurred to me since writing the foregoing essay. They have not always been recognized as such by Prākṛit grammarians. E. g., in Subha Chandra sūtra अमृद्वादौ वा (II, 8. corresp. to Hema Chandra I, 44), it is said among the examples that पावासू is a modification of the Sanskrit प्रवासी; and again in his sūtra उर्दिनि प्रवासीदौ (II, 53. corresponding to Hema Chandra I, 94, 95) it is said that by the change of इ to उ the Sanskrit प्रवासी becomes in Prākṛit पवासुओ. It is manifest, that the Prākṛit पवासुओ or contracted पवासू (or पावासू) is not a modification of the Sanskrit प्रवासी (of the base प्रवासिन्) but of a Sanskrit form प्रवासकः. Again Subha Chandra has a sūtra वादर्मयटि (II, 20, corresponding to Hema Chandra I, 50), according to which the vowel अ of the affix मय optionally changes to अइ; the example given is धम्ममइओ for Sanskrit धर्ममयः; that is, according to the Prākṛit grammarian's theory the Skr. धर्ममयः changes to धम्ममइओ or, with elision of the medial य, धम्ममइओ. This is evidently a fanciful theory. The truth, no doubt, is that the Sanskrit base धर्ममय is, by adding the affix क, amplified to धर्ममयक and then weakened to धर्ममयिक; the latter form naturally yields the Prākṛit form धम्ममइओ (by eliding य and क). Again Subha Chandra has a sūtra सर्वज्ञादौज्ञेच (II, 18, corresp. to Hema Chandra I, 57), according to which, if the comp. cons. ज्ञ is changed to ञ, the inherent vowel अ becomes उ; thus Skr. सर्वज्ञः becomes in Prākṛit सव्वणू. Now the form सव्वणू presupposes an original base सर्वज्ञ, but there is no such base in Skr. ;





but सर्वज्ञ would be naturally amplified to सर्वज्ञक, and this might very well be modified to सर्वज्ञुक, which would yield a Prākṛit form सव्वणुच्चे or contracted सव्वणू. It should be noted, that all the words referred to here, are such in which the forms in इक and उक are confined to the Prākṛit, while in Sanskrit they occur only in the form in अक. But there is a not inconsiderable number of Sanskrit nouns in अक (*i. e.* अ + affix क) which have, *in Sanskrit itself*, alternative and equivalent forms in इक and उक. Now considering that most of these forms in इक and उक occur only *rarely* and in *late* Sanskrit works, I think we are justified in concluding that, a., they are merely phonetic modifications of the original form in अक (*i. e.*, not formed by a separate and original Skr. affix इक or उक, which is the common opinion); b., that originally they were peculiar to Prākṛit, having originated by Prākṛit phonetic law; and c., that they have been retransferred from Prākṛit into Sanskrit (a theory regarding the relation of Prākṛit and Sanskrit which admits perhaps of wider application, than is generally thought). If this view be correct, the number of those cases where a Skr. base in अक has undergone in Prākṛit a modification into इक or उक, will be very much enlarged. As to the prevalence of the addition of the affix क (*resp.* इक) in Prākṛit, see the testimony of Dr. J. Muir in *Sanskrit Texts* Vol. II, p. 122, and Dr. Weber in *Fragment der Bhagavatī*, I. ster Theil, pp. 437, 438.

• *Note 6.*—The Gaurian verb, पीना *to drink*, must be derived from the reduplicated root पिव (for पा), which, probably, was much more extensively employed in colloquial Prākṛit than either in Skr. or literary Prāk. The Prāk. Gerund of पिव would be पिवणीच्चं or पिवणिच्चं, or (with elision of व्) पिच्चणिच्चं, or with insertion of euphonic य (*espec.* mentioned by Hema Chandra I, 180, Subha Chandra III, 5), पियणिच्चं, or (broadened) पियण्चं. This latter form would be contracted in Gaurian regularly to पीनयं (old G.), पीने M., पीनौ B., पीना H.

*Note.*—I withdraw, for the present, the remarks on the Skr. Past Part. Act. affix इतवान् on page 67.



The following errata, chiefly broken vowel points, occur in the first three essays published in the Journal for 1872.

Page	line	5, for	ल	read	ले
"	125,	"	11, " स	"	से
"	126,	"	12, " चै	"	चें
"	127,	"	35, " य	"	ये
"	127,	"	38, " कर	"	केर
"	128,	"	2, " केरा	"	केरो
"	131,	"	35, " कैस	"	कैसे
"	133,	"	14, " छता	"	छतो
"	133,	"	15, " निचय	"	निचयः
"	135,	"	20, " कद	"	कदे
"	135,	"	21, " करक	"	केरके
"	136,	"	13, " केरक	"	केरके
"	138,	"	14, " तर	"	तेरो
"	138,	"	15, " शाना	"	शाना
"	138,	"	27, " भ्	"	लभ्
"	141,	"	6, " Kabir	"	Kabir and
"	141,	"	16, " भष	"	भेष
"	142,	"	35, " करक	"	केरक
"	145,	"	13, " घाड़ा	"	घोड़ा
"	145,	"	34, " घोड़ा	"	घोड़ा
"	145,	"	34, " घोड़	"	घोड़े
"	146,	"	1, " कुरा	"	कुरो
"	146,	"	7, " धंधा	"	धंधो
"	146,	"	7, " ना	"	नो
"	146,	"	9, " ना	"	नो
"	146,	"	10, " ना	"	नो
"	146,	"	11, " ना	"	नो
"	146,	"	19, " ना	"	नो
"	146,	"	20, " ना	"	नो
"	147,	"	1, " काह	"	कोह
"	147,	"	41, " करणीयं	"	करणीय
"	142,	"	14, " जा	"	जो
"	149,	"	14, " ना	"	नो
"	149,	"	16, " कादा	"	कदो
"	151,	"	7, " लड	"	लाड
"	151,	"	8, " लछो	"	लाछो
"	151,	"	8, " लभः	"	लाभः



Page 152,	line 8,	for सुमांथ्यौ	read सुमांन्या
" 152,	" 12,	" पास	" पाने
" 155,	" 13,	" लग्न	" लग्ने
" 152,	" 13,	" लग्न	" लग्ने
" 152,	" 19,	" सनेऊ	" सनेऊ
" 153,	" 30,	" सनेहो	" सनेहो
" 153,	" 31,	" घाड़थो	" घाड़थो
" 153,	" 35,	" सनेऊ	" सनेऊ
" 154,	" 5,7,9,	" भमर	" भमर
" 153,	" 35,	" हाता	" हाता
" 154,	" 25,	" थो	" थो
" 154,	" 28,	" थथो	" थथो
" 155,	" 4,	" सनेहो	" सनेहो
" 155,	" 12,	" थो	" थो
" 155,	" 20,	" मोहो	" मोहो
" 159,	" 1,	" भाष	" भाषे
" 159,	" 1,	" विश्व	" विश्व
" 162,	" 33,	" for	" or
" 163,	" 28,	" कर	" केर
" 164,	" 42,	" हाट	" हाट
" 165,	" 2,	" हाटथो	" हाटथो
" 165,	" 2,	" हाटक	" हाटक
" 165,	" 3,	" हाटर	" हाटर
" 166,	" 1,	" कतिथ	" केतिथ
" 166,	" 6,	" कर	" केर
" 170,	" 1,	" हो	" हो
" 170,	" 1,	" हो	" हो
" 170,	" 35,	" धली	" धली
" 171,	" 23,	" ह	" ह
" 173,	" 7,	" आफ	" आफु
" 173,	" 9,	" चिन्ह	" चिन्ह
" 173,	" 18,	" घाम	" घामु
" 173,	" 23,	" धला	" धला
" 173,	" 23,	" का	" को
" 173,	" 33,	" होदी	" होरी
" 164,	" 4,	" का	" को



# JOURNAL OF THE ASIATIC SOCIETY.

—◆—  
Part I.—HISTORY, LITERATURE, &c.

No. II.—1873.

*Note on two Coins from Kausambhi.*—By THE HONORABLE E. C. BAYLEY,  
C. S. I., C. S.

The two coins which I lay before the Society, come from the site of the ancient city of Kausambhi, situate on the river Jamuná, near Alláhábád, a full description of which will be found in Genl. Cunningham's work on the Geography of Ancient India, Vol. I, pp. 391-98, as also in his Archæological Reports from 1862 to 1865, Vol. I, p. 301.

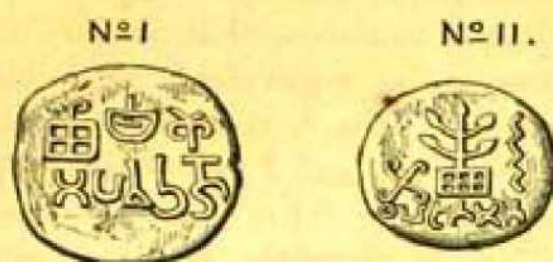
Bábu Sivaprasád, C. S. I., the Inspector of Schools for the Banáras Division, to whom General Cunningham acknowledges his obligations for information regarding this site, some time ago sent me several coins found upon it. I told him, that though evidently containing types of much interest, they were unfortunately too imperfect for identification, but that I had no doubt, more perfect coins would yield a valuable result.

Bábu Sivaprasád has now sent me the two present coins with a few others of less interest, one of the latter is of the type which Col. Stacey termed the "Cock and Bull" type, and bears the legend 'Deva mita (sa?).' This coin, however, is not from Kausambhi, but from Eastern Audh.

The first of the two coins which I am about to describe (Fig. i), is rather thin, weighing 37·035 grains, and is of a white metal which does not appear to be silver, but which I have not ventured to clean. The reverse bears a rude and faint representation of some animal, apparently the Indian bull. The obverse bears, in the field of the coin, the symbols of the sacred tree on the left; in the middle a curious semicircular disk, with a sort of handle and some marks within the semicircle, more like a spade or similar agricultural instrument than anything else to which I can compare it.



The symbol on the right appears to be identical with one often found on the early punched silver coins so common in India, and resembles the rod of Æsculapius, or rather perhaps two serpents entwined across a staff.



The legend, however, is the most remarkable part of the coin. It is quite legible, and I read it as महरुण्ड, or "Maha Varuṇḍa," the last letter being a compound (as I take it) of the cerebral  $n = ण = ण$  and the cerebral  $ḍ = ड = ḍ$ . The last letter may, however, be possibly रु, in which case the word would read "varuṇḍú." In either case, the word would be "varuṇḍa," Prakrit for Váruṇḍa, for which no other meaning is given in the dictionaries, but that of "king of the serpents," of whom it was either the name or title. I am indebted to Rājā Kálikrishna for the etymology of the word, which he derives from the root रु (रुणाति), "to nourish or support," or as in some lexicons, "to protect, to surround,"—a root from which is said also to be derived the word 'varanda' or 'veranda' in such common use among us.

The conclusions I would draw from the use of this term are as follows,—whether it was used as the name of the striker of the coin, as such names Balarám, Mahárám, Mahádeo, Srikishn, are used in our own day, or as an invocation to the deity worshipped; in any case the use of the acknowledged name or title of the serpent king indicates the prevalence of snake worship at Kausambhi at a period which, from the character of the letters, I should be inclined to place at least one century before the Christian era, possibly much earlier.

The next coin (Fig. ii) is even yet more curious. It is of copper and thicker than one above. The weight is 60·444 grs. The reverse also apparently bears the figure of an animal, now undistinguishable; the obverse, however, is unusually clear and distinct, and from the form of the letters, I would give it a more recent date than the previous coin, but still place it not later than the first century of the Christian era.

The symbol to the left Bábu Pratápachandra Ghosh assures me is the true "svastika," that which is ordinarily so called, and which is identical with the "fylfot" or Odin's seal being properly termed Vajráṅkus'a.

The centre symbol is the sacred tree, and the third to the right a serpent. The legend runs plainly thus—





## ठहजतमित

ṭhaha jata mita

I have consulted Bábus Rájendralála Mitra, Pratápachandra Ghosh, and Sivaprasád as to the reading of this somewhat obscure compound. Admitting that “ṭha” might be taken as the equivalent of “tha,” and that again as the Prakrit representation of “stha,” Bábu Rájendralála nevertheless prefers to read the legend as written, and I am disposed to agree with him so far. He would take the syllable “ṭha” as representing the little used word “ṭha,” ठ, an idol; “ha,” ह, to break; and, jata, जत for जित, conquering or conqueror, with of course “mita” मित, for मित्र, and would read the whole as “the friend of the conqueror of the idol breaker, or the “idol breaker conquering friend,” the latter construction being one used not uncommonly at the period which I have above assigned to this coin. Bábu Pratápachandra Ghosh would prefer to read “stha” for “ṭha,” and the second letter as “pa,” thus making the two first syllables “stha pa,” for sthá pa, which, taking “stha” in the secondary of “the world,” would of course enable them to be rendered as “protector of the world;” but the second letter is, I think, too plainly “ha,” so that the reading of “pa” is not admissible.\*

Bábu Sivaprasád prefers reading “jata” as “jāta,” born, quoting the parallel name of “Ajātasatru,” a suggestion which may be well worth considering, the entire thus read might be translated as “friend of him who was born an iconoclast.” Without expressing any preference for these readings, which I give only as suggestions, I leave the further discussion of this very interesting coin to Sanskrit scholars.

Accepting, however, as is, I think, almost unavoidable, Rájendralála's version of the two first syllables, the question naturally arises as to who “the iconoclast” is, to whom they point. Genl. Cunningham considers that the earlier Buddhists admitted the use of at most only symbols of the deity, and rejected all representations or worship of Buddha personally. If that be so, the “idol breaker” might well be one of the earlier Buddhist rulers or missionaries: in any case the term is curious as pointing thus early to a struggle against idolatrous worship.

In the next place it seems to me that this curious and somewhat ponderous combination of terms can hardly have been the actual *name* of any individual, but that it was more probably an assumed title, or synonym, perhaps that of some municipal functionary of Kausambhi. Bábu Rájendralála has suggested as accounting for the use of the curious word ठ, that it might have been employed under a custom by which the first letter of a Hindu name is often that of the asterism under which he is born, and as ठ is the letter for Leo, the name might indicate the birth of its bearer under that asterism. If, however, it was an *official* title, this suggestion



would not apply, unless, indeed, it might perhaps similarly indicate the commencement of office under that asterism.

Any way, the coins are both very suggestive contributions to the little-known early history of India, and Bábu Sivaprasád deserves the thanks of the Society for bringing them to light.

*Rude Stone Monuments in Chutiá Nágpúr and other places.—*

*By COL. E. T. DALTON, C. S. I., Commissioner of Chutiá Nágpúr.*

(With three plates.)

A passage in the address of our President published in the Proceedings for February last, reminds me that I should no longer delay in laying before the Society some extracts from my journal describing rude stone monuments in Chutiá Nágpúr. We have here the advantage of possessing both ancient and modern monuments of this type, we may find them crusted with lichens of time and belonging to a generation of whom no tradition even remains, or we may find them still moist with the tears of the mourner!

In my work on Descriptive Ethnology, I have given all the information which I possessed regarding the ceremonies and solemnities adopted by the Kolarian tribes in the disposal of their dead, but in regard to their monuments, their dolmens and monoliths, there is much more to say, especially since, after reading Fergusson's deeply interesting work on the subject, I find that so little is apparently on record regarding the rude stone monuments of Bengal.

In the cold weather of 1871, my work took me through some of the wildest parts of the Singbhúm District, and I saw many good specimens of the sepulchral and monumental stones of the Larka Kols or Hos. The former are in the village sometimes in one place or burial ground under the finest and oldest of the village trees, but sometimes the principal families have each their own collection near their houses.

The sepulchral stones consist of huge slabs covering the spot or spots where the ashes repose in earthen urns, raised a few inches from the ground by smaller stones used as pillars. In the village of Borkela, eight miles south of Chaibásá, I noticed a burial slab placed over the ashes of the grandfather of Sikur, the present deputy Manki of the Pir. Its dimensions were as follows: length, 16 feet; breadth 7 feet; and 1 foot 3 inches thick. Another over Turam, the grandfather of the Manki, length, 16 feet; breadth  $7\frac{1}{2}$  feet; thickness, 1 foot. This stone, an enormous slate, was carried from its site three quarters of a mile from the village, and the people devoted two months to the work, moving it inch by inch on rollers, when men could be collected for the purpose.



It is not surprising that they should take all this trouble for a man in the position of the Borkela Mānki who is a chief of considerable influence and old family; but at the next halting place, Sargam Hato ('the village of the Sāl Tree'), I saw a huge stone which had been brought to the village in anticipation of the death of an old woman who was in the last stage of decrepitude. This old crone was not a pleasing object to gaze upon, and she had been for many years a burden to her family, but she had been kindly cared for, and had the gratification of knowing that a public funeral had been decreed to her, and the satisfaction of gazing on the monumental stone which had already been prepared to commemorate her virtues.

The Saranda Pir is a mass of hills forming the southern geographical division of the District of Singbhūm, and has a population, chiefly Kols, of about 700 souls. I entered the northern portion of this wild, unfrequented tract on the 1st January, 1872, and passing through it from end to end, emerged in Bonai on the 7th.

The villages of Saranda are few and far between, and the scanty population of the Munda type of Kols are in a very primitive state having no intercourse with the world beyond their own valley. In marching through the Pir to Bonai, the road continued up the valley watered by the Koina, which we traced almost to its source, and the small villages were for the most part on or near its banks. The sites were picturesque enough, and we generally found for our bath, pools shaded and rock-bound, in which Diana and her nymphs might have disported themselves. The people were at first rather shy. Many of them had never before seen a white face, but they gained confidence as we quietly advanced, and no evil fell on them in consequence of our intrusion. On one occasion, the women of a village which we passed were induced to follow us to camp, and there they sang and danced for us. Most of the men were away clearing the road; but those we saw, and the girls, in number twenty-five, who danced for us, were of strikingly fine physique, and there was very little drapery to hide their grand proportions. The predominance of eyes, nose, and mouth of the Mongolian type was very remarkable; some of them were of very light and bright colour, one of the group from her features and complexion might have been taken for a Chinese girl. Such traits stereotyped in Saranda, seem to indicate that these Mundas have been there from a very remote antiquity without opportunities of miscegenation. Some of the young women told me they had never ventured to cross the borders of their Pir.

After the dance we remained on very good terms with the fair sex in Saranda. The young women joined the men in clearing our path through the forest, and the vigour with which they used their felling axes, the hearty, good humour with which they toiled at the work, greatly astonished and edified our comparatively indolent and apathetic camp followers.



There are no ruins in Saranda, no indications of its having ever been even partially inhabited by people of civilization superior to those who are now there. The Saranda Garh (*i. e.* fort) shewn in the map is a mere earthen wall and moat constructed round the site of a house, formerly occupied by a family who are said to have held the position of chiefs of Saranda. Within this enclosure, there is a wonderful iron kettle-drum of gigantic size. It lies bottom upwards half buried in the earth. The people of the place could not be induced to go near it, except as postulants in an attitude of prayer! The tradition is that when the chief wished to summon his people, the drum was conveyed to the summit of the highest hill, and it could thence be heard in every village in the Pir.

I give these extracts from my journal to shew that in the Saranda Kols we find a very primitive type of the race. They are, by their own account, the true autochtones of the country, and till recently, no one has ever attempted to intrude on their exclusive occupation of this mass of hills. They repudiate all traditions of migrations which neighbouring cognates accept. The country they occupy was made for them and they for the country, and how long have they been here?

The oldest looking village that I saw, was called Rongso, where my tents were pitched under some grand old tamarind trees of immense age. Close adjoining, two noble Banyan trees stretch out their long arms and great hands over a vast area of massive slabs, which cover the ashes of past generations of the villagers. The small huts in which the living dwell, are miserable structures, but the dead lie in the most solemn and impressive burial ground that I have ever beheld. I have seen no finer Banyan trees than those which here form not only the canopy of the mausoleum, but *grow* columns and arches separating the whole into compartments, which fill the mind with a vision or dream of aisles, transepts, and crypts,—an old abbey of the Elves or Dryads. The site, it is said, was originally taken up by one family. There are now fifteen houses and about 75 inhabitants. The deaths are at the rate of about two per cent. per annum. All who die do not attain to the dignity of a slab, and the ashes of several members of a family may be deposited under one stone; for this is the custom of the Mundas, and I found the Saranda people more Munda than Ho, that is, in customs resembling more the Kols of Chutiá Nágpúr proper, than the Singbhúm members of the family. The slabs above ground considerably exceeded 300 in number, but there were more buried or nearly buried. We may assume 400 slabs, and if we give only two to a slab and make allowance for the increase which starting with one family there must have been in numbers, we have proof of great age in what we see.

But this is a pigmy burial-ground in comparison to some which I subsequently visited.



I am indebted to Mr. T. F. Peppé for having directed my attention to the great Munda burial ground of Chokahatu ('the place of mourning'), and for the photograph of this very interesting scene, which I am sending with this paper.

This village is situated between Bundú and Buranda with Tamár to the south. These are all estates in the Lohardagga District, or it would be better to say in Chutiá Nágpúr proper, called now, with two others, Páneh (five) Párganah. The majority of the population and oldest people are Mundas, and the chiefs, who are usually called Rájás, are unquestionably Mundas too, though they are now thoroughly Hinduised, and call themselves Rájpúts and Kshatriyas. There is a burial ground at Bundú, which merits attention, as a section of an understratum of graves, buried by time, is shewn where the soil has been cut away by water, and the cinerary urns are exposed, but the account of one will suffice.

The road from Bundú to Chokahatu goes east through a highly cultivated country. It crosses the Kanchi River, and on the right bank of that stream, I came unexpectedly on some very old looking ruins of stone temples, eight in number, apparently dedicated to Siva, as I noticed several lingas about, the only visible objects of worship.

The temples were mere shrines built of cut stones, squared and put together without any cement or clamps. No one in the neighbourhood has the faintest notion by whom, or at what period, these shrines were constructed. A quarter of a mile east of the ruins, I found a *deserted* Kol burial-ground, close to the village of Dáruháru, but the people of Dáruháru dare not use the old burial-ground; the descendants of those whose ashes lie there are gone out of sight and memory. And the Dáruháru people's remains must be taken to a spot two miles distant from their houses! Now I noticed that in this deserted burial-ground a very free use had been made of the stones cut for the temples, the slabs rested on such cut stones, so the deserted burial-ground was in use when the temple was in ruins, but all around have now passed away from the recollection of man, both those who worshipped the Sivas of the shrines, and those of another dispensation who helped to destroy them.

It was past noon when we came in sight of the great Chokahatu\* burial-ground. It was then between us and the village of the name, the centre of a great plain, an anomalous interruption to a huge expanse of terraced cultivation. There are no great trees here to shade the graves, the field of mourning has no such solace.

The march had been a long one, and there was no time to lose, as I could not afford a halt, so I set all my clerks at once to work to count the slabs, and to measure the area of the space which they covered. The result gave

\* Lat. 23° 10', North; Long. 85° 56', East.



seven thousand three hundred and sixty tombs, mostly of the dolmen or cromlech form, almost covering an area of 22 bighas and 16 kattas, more than seven statute acres, and so close together, that you might traverse the ground in different directions stepping from grave to grave.

Many of the slabs appeared level with, some even below, the surface. Their sunken condition proclaimed their age, as we may presume that originally they were like the others above ground, supported on vertical stones. The horizontal slabs are many of them, huge masses of gneiss of various irregular forms. One, 15 feet 3 inches in length, by 4 feet 6 inches in breadth, was supported on five square pillars, 18 inches above ground; one half-buried slab, nearly elliptical in form, measured 12 feet 9 inches by 9 feet 10 inches; one nearly circular, like a table, 33 feet in circumference; another 18 feet in length had seven legs. A triangular slab properly appeared as a tripod, and one 13 feet 4 inches by 6 feet 8 inches had six legs.

I do not know that I have given the dimensions of the largest; there were many that appeared at least as large as those I measured.

There is no question as to the object of these raised slabs. \* Chokahatu, the 'place of mourning,' is still used by the Mundas of the village so-called, and nine of the surrounding villages, for the interment of their cinerary urns, and I believe one need not be long there to witness the ceremony. Many of the cromlechs appeared to have been freshly set up, many had about them a look of hoary age.

I obtained a list of villages which have places allotted to them in the burial-ground, and from the census returns, these villages contain nearly two thousand Mundas who by their faith, if they preserve it, *must* there deposit their cinerary urns. The mortuary statistics of the selected areas of the Lohardagga District give an annual average death-rate of under 20 per mille. If the population and the death-rate were always the same, and every cromlech covered the ashes of only one person, the number of slabs (which we may assume to be 8000, including buried and broken up graves not counted) would represent a period of only 200 years; but if, as with the Kasias, each cromlech is a family vault, and we allow for increase of population as years advanced, and make corresponding deduction in the number of deaths annually, as we count back we might give 1000 to 2000 years as the age of the oldest now existing, and probably excavation would disclose an understratum of similar graves.

I was told on the spot that some of the slabs were known to cover the ashes of several members of a family, but the ashes of one or two great men reposed in solitude. In Singbhúm, the latter custom is prevalent; but amongst the Mundas of Lohardagga, the family grouping of ashes is practised.

It is, of course, hard to say what changes may have taken place, likely





to affect the numbers of the Munda people in this part of the country, but there is no reason for supposing that there has been any considerable reduction by emigration. All Mundas who make use of the Chokahatu cemetery, must, in accordance with the creed of the race, be the descendants of colonists who established themselves at Chokahatu or somewhere near it. The founders of the other villages must be offshoots from the first settlement; the probability, consequently, is, that the Munda population of this neighbourhood has greatly increased.

The monumental stones in this part of the Munda country are few in comparison with the sepulchral; but many are noticeable, some in the villages, even within the garden enclosures (as they are always placed by people of the Kharriah tribe), some scattered in the fields as if placed there for the benefit of the cattle, like those whose founder Scotchmen are said to bless, and some in groups. The arrangement of the group is in line, perhaps indicating a line of ancestors or a family. They frequently served for a father, mother, and their offspring; but I do not find that more than one monumental pillar is ever set up in honor of one person. The turban seen occasionally on the central and tallest of a line of such monuments in the Kasia Hills, I have never perceived amongst the Kols; but though I have not myself seen carved pillars erected by Mundas to the memory of the dead,\* I have heard of them.

It appears from Yule's account† of the Kasia cenotaphs, that cromlechs are sometimes found in front of them, a flat stone resting on short rough pillars which form the ordinary road side resting place of the weary traveller. These are not cineraries. I have stated in my 'Ethnology' that the Singbhúm Kols, when they first set up a monument, make round it a plinth of earth, on which the ghost of the departed or other person who is bold enough to take the seat may rest, but I have recently seen both in the Lohardagga and Singbhúm districts.

Monumental monoliths with little cromlechs in front, ghost seats, resembling exactly the Kasia seats, depicted and described by Colonel Yule, I first saw in Sonapet, a beautiful valley, the hills forming which give birth to the Sona River, an auriferous stream, hence the name. This valley has been held for ages exclusively by Mundas. Each village is a parish with its separate burial-ground and head man, and at the entrance of one of these, the village of Súrsi, I saw a fine monument of this description, raised to the memory of a respectable inhabitant recently demised. The Hargari, or cemetery, was at the other side of the village, and his grave was there shewn to me. So there could be no doubt that the seat was not, as I

\* Mr. T. F. Peppé has kindly favoured me with a sketch of such carved pillars which I forward.

† Journal, Ag. Society, Bengal, No. CLII, 1864.



had at first supposed, the cinerary. The pen and ink sketches herewith sent are of similar monuments in and near the village of Regadih in Kursaon.

As the monolithic monuments throughout the Kol country, nominally, bear no proportion to the cromlechs, we must infer that the erection of the former in the name of the deceased is a much greater and rarer honor than the construction of the latter. In Singbhúm, the Mundas and Mankis are even now ruminating on the expediency of cutting on the pillar at least a name and date to shew to posterity in whose honor it was set up and when; for they admit that the object is not attained under the present system, as the name does not survive to a third or fourth generation.

The same remark applies to many pillars which have been set up to commemorate some solemn compact or action of importance, of which the stone itself now tells nothing. The art of making the stone tell its own story must be taught at the Chaibásá Industrial School.

In some parts of the country, suitable stones are not readily procurable. The first alternative is a cairn, a heap of stones usually constructed round a post, the second the post alone; but the top of the post, if set up in honor of some deceased friend or hero, is credibly carved into the representation of some animal. It looks like a cross between a camel-leopard and a horse. It is, I believe, the Bir Sádóm of the Kols, the jungle horse, the Nílgaí, *Antelope picta*.

It is obvious that a people thus addicted to the use of these milestones of ages, (without figures unfortunately) must have left traces of themselves in all places which they have successively occupied; and from all I have heard and read and also from what I have seen, I am of opinion that such traces of Kolarian occupation may be found wherever the cognates of the Mundas of Chutiá Nágpúr have been located.

There are traditions of the pre-Aryan Kol occupation of the Bihár and Gayá districts, and Mr. T. F. Peppé, Sub-Deputy Agent, who takes great interest in these questions, has seen the monolithic monuments in Japla, and Balaunja, in Siris Kútúmba, in the wilder parts of the Gayá district, and about Shergháti. We thus have them up to the Son River and in the Gangetic provinces. Mr. Peppé's note to me on the subject is appended.

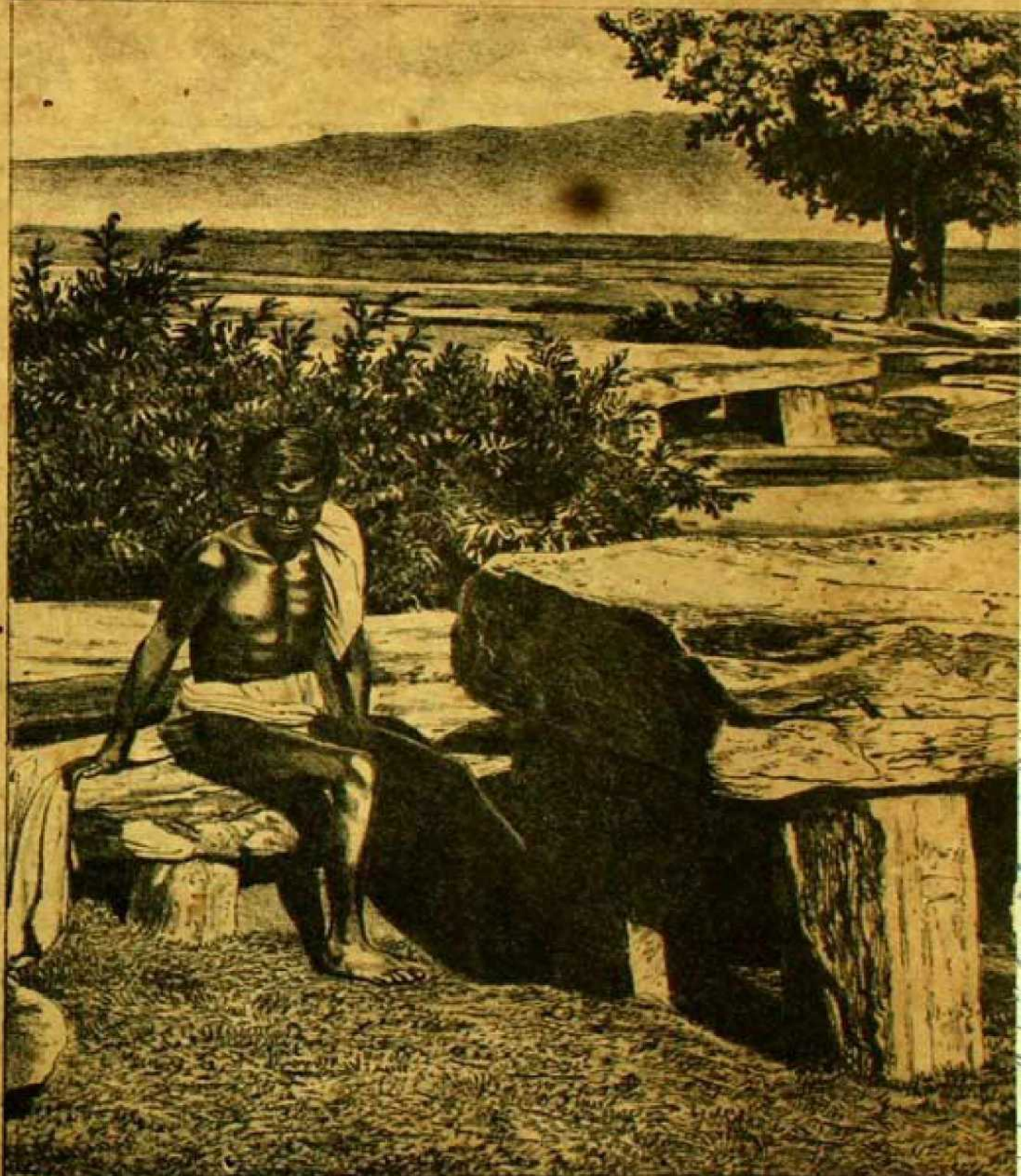
From the western parts of the Mánbhúm district, the Kúrmis, it is said, expelled the Kols. We have good proof of this in the fact that the Kúrmis are now there in possession, and within their boundaries we find the sites of the old Munda villages clearly indicated by their old cemeteries and occasional monolithic monuments.

In a southerly direction, I have found these Munda footprints as far as the confines of the Sambhalpúr district, and indeed in that district, and in Bámrá.

In all the places above mentioned, we have either the Mundas *in situ*, or traditions of their occupation and the stone monuments to attest the tradi-



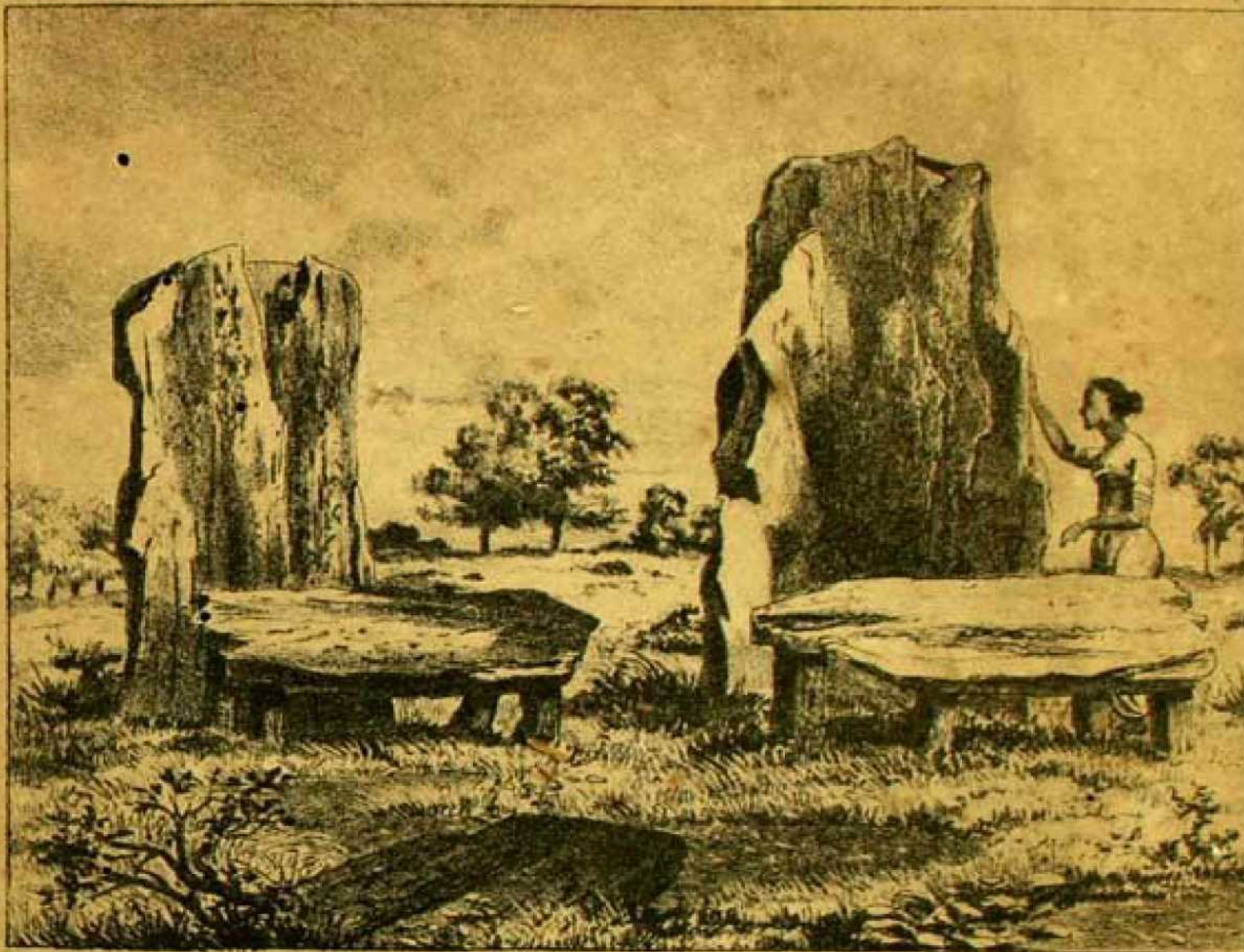
Journal, As. Soc. Bengal, Pt. 1, 1873.



J. Schasmberg, Lith.

*The great Munda Burial-ground at  
(from a photograph.)*



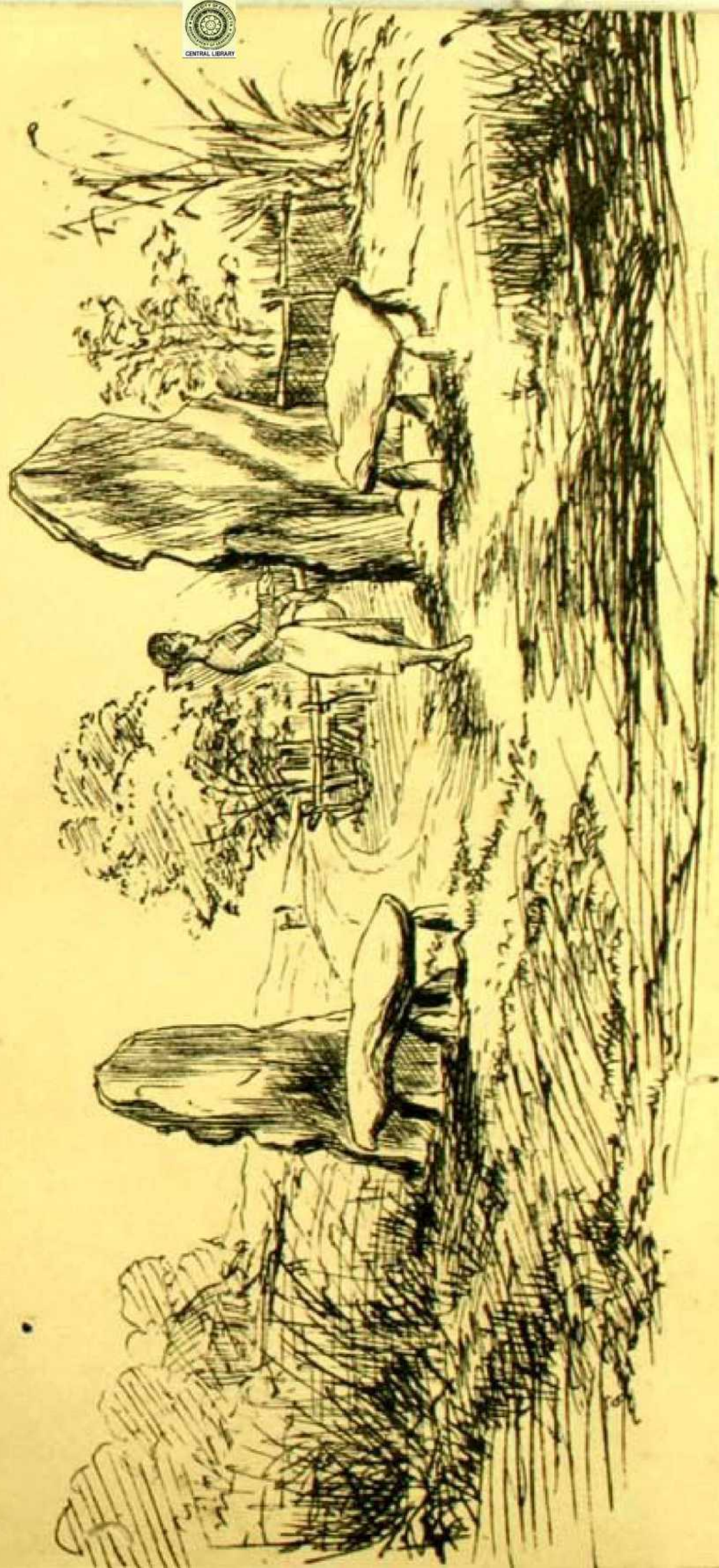


*Regadhi Monumental Stones with Ghost's seats  
(From a Sketch by Col. E. T. Dalton, C. S. I.)*



*Monumental Stones, carved and plain, near Baispur,  
Lohardagga, Chutia Nagpur*









tion; where we find the latter without the traditions or the people, we may still safely infer that we have got on Munda tracks.

*Note by Mr. T. F. Peppé.*

‘I have observed the monumental stones all along the boundary between Bihár and Chutiá Nágpúr, and have little doubt they would have been found in the more civilized portions of the Bihár and Patna districts, had not the custom been so common of erecting monumental stones in honor of deceased Hindús at the road sides leading into the village; and all sorts of stones are found set up in this way, many of them rude uncut stones, others parts of temples, and I feel sure many of them have been appropriated from their Kolarian predecessors.

‘In the wilder parts of Bihár, in parganahs Japla, Balaunja, Sirris Kútumba and also in Shergháti, they are often to be met with, and their being found scattered over the country leaves little doubt of their Kolarian origin, to which local tradition assigns them.

‘In several places, I have seen a singular kind of monumental stone in the Lohardagga district, and the accompanying sketch may give you some idea of those I have seen near Bajpúr, some few miles north of Nugri. They were claimed by the Pahan, or priest, of the village, who said that they had been set up in honor of his ancestors. I have seen them at other places also, but cannot remember where.

‘With regard to Hargaris, or Harsaris, as they are sometimes called, I think it worth noting that the largest collections are found in the tract of country lying on both sides of the Subanrekhá, bounded on the west by the Chutiá Nágpúr Gháts, on the east by the Ajodia hill, on the south by the Singhbhúm hills, and on the north by the hills forming the boundary between Hazáribágh and Lohardagga and Mánbhúm. This tract includes the parganahs of Sillí, Barunda, Rahi, Bundú, and Tamár on the west side of the Súbanrekhá, and parganahs Julda, Bygonkudar, Bághmúri and Patkom on the other side. Judging by the vast collections of grave stones, this tract must have been occupied by a Munda population for a much longer time than any other portion of Chutiá Nágpúr I have seen. As you approach or recede from this centre, the collections of grave stones increase or diminish in number and importance, and it is curious to observe that, in the upper portion of the Damúdar valley, such indications of a Munda population are wanting, only monumental stones being met with.

‘The largest slab I measured at Chokahatu, was 16 feet by 6½, by one foot in thickness, but at Barundah, about two miles to the north-west, there are some much larger.’

‘On remarking the comparative insignificance of the burial places on the plateau with those in the ‘Lutur Desum’ or low country, I have frequently been told in reply that it is only the Munda and his Bhúinhárs who have slabs in the former, whereas down below every Munda family have their slab.’



*The History of Pegu.*—By Major General SIR ARTHUR P. PHAYRE,  
K. C. S. I., C. B.

(Continued from p. 57.)

Rádzádirít was succeeded by his eldest son, Binya Dhammá Rádzá. His two younger brothers, Binya Ran and Binya Keng, who were governors of Dala and Takun (Rangoon), believing that he bore them illwill, entered into a mutual compact for their own protection. They came then to open war with the king; but Binya Ran made his peace, and was appointed crown prince. Binya Keng then wrote to the king of Ava, asking for assistance, and tendering his allegiance. The king of Ava at this time was Thihathu. He at once sent a force into Pegu, which occupied Dala, but gave great offence to Binya Keng by plundering the town. Binya Keng, disgusted with his allies, secretly made submission to his brother. Some of the principal Burmese officers were treacherously murdered; and a small remnant of the invading force was allowed to retire to Prome. Binya Keng was now forgiven, and was sent to Dala to put the defences in order. After some time Binya Ran, wishing to have the western provinces under himself, induced Binya Keng to move to Muttama, where he was appointed governor; while Binya Ran had Dala, Bassein, and Tharawati. The king remained at the capital with only nominal authority. The king of Ava at this time was Mengréthihathú, who ascended the throne in 784 (A. D., 1422). He determined again to invade Pegu, and sent down an army under two generals. Binya Ran decided to enter into an alliance with him, and offered his sister Tsáubomé in marriage. This was accepted, and the princess having first been consecrated as a queen, went to Ava. After this, the king of Pegu was poisoned by one of the queens, instigated, it is supposed, by Binya Ran. He reigned only three years.

The crown prince now succeeded, and is known as Binya Rankit. He allowed Binya Keng to be viceroy at Muttama, where he was almost independent. He enjoyed that power for eighteen years, and was then succeeded by his sister, who was married to an officer of high rank. This king, though he had some causes for dissatisfaction with the king of Ava, did not go to war. In the Burmese history it is stated that, about the year 799 (A. D., 1439), he interfered in the succession to the throne of Táungu, and placed thereon Mengtsán-ú, the son of a former king. This event is not mentioned in the history of Pegu. The rulers of Táungu, at this period, were anxious to be independent of Ava, and the fact is, no doubt, correctly stated. About this time the king's sister, who had been married to Mungthi-ha-thá, king of Ava, under the name of Tsáu-bo-mé, being dissatisfied with her position at that court, fled secretly with the assistance of two



Buddhist monks, and came to Pegu. She was received by her brother with great distinction, and now becomes known in Peguan history as Thakheng, or Sheng-tsáu-bú.

When Monhyin Meng-ta-rá succeeded to the throne of Ava, the ruler of Táungú, Theng-kha-rá, declared himself independent, and claimed to be the rightful king of Ava. He entered into correspondence with Binya Rankit, proposing that they should march with their joint armies to take Prome, and promising, if he was successful in gaining the throne of Ava, to present annually gold and silver flowers in token of allegiance. This was agreed to, and a force of 35,000 men with five hundred elephants, under the command of Tha-min-pa-rán, and 30,000 men by the river under Binya-in, proceeded to Prome.

The king himself went by water; the king of Táungú marched his men across the mountains, and the allied armies then invested Prome. The king of Ava was too much occupied at home in securing his own position, to be able to send any succour to Prome. The governor of that city was, therefore, obliged to surrender it. But negotiations were opened, and Binya Rankit married a daughter of the king of Ava, and then appears to have deserted his ally. Ava and Pegu were now on good terms, but the historian is silent as to what was done with Prome. Pegu was prosperous in this king's reign, and he was much beloved. He repaired and adorned the two great national pagodas Shwé-máw-dau and Shwé-ta-kun. He died in the year 808, or A. D. 1446, after a reign of twenty years.

This king's successor was his nephew and adopted son, Binya Wa-ru, the son of Sheng-tsáu-bú by her first husband. He reigned only four years. He was careful as to the administration of justice; the country was quiet; and there was unrestricted commerce with the adjoining kingdom.

The next king was Binya Keng, a son of Binya Rankit. The Burmese history says that he was assisted to gain the throne by Narapati, king of Ava. He reigned only three years, and was succeeded by Mháu-dau, his cousin.

This King was a cruel tyrant, and put to death all the male members of the royal family whom he could lay hold of. The whole people, clergy and laity, joined against him, and five noblemen put him to death. He reigned only seven months. All the leading men of the country now implored queen Sheng-tsáu-bú, the daughter of Rádzádirít, to take the sovereign power of the kingdom. She consented and was consecrated. All the people, Mun, Mrámmá and Kulá, rejoiced, and the country had rest. The queen received letters from the kings of surrounding countries, and beyond sea from Ceylon and Bijja-ná-ga-ran, with which there was much commerce. The queen was devoted to religion; religious buildings were repaired or erected; and the two great national pagodas were entirely re-gilded. Additional land was assigned to them, and five hundred families were dedi-



cated as slaves to the service of the Shwé Dagon, with a complete establishment of artificers and warders for service, day and night.\* One of the Buddhist monks who had assisted the queen to leave Ava, was chosen by lot to become a layman; he was then raised to the rank of crown prince, with the title of Dhammádzedi, and was married to the queen's daughter. Being suspicious that the other monk would, from envy, seek to raise a disturbance in the country, he had him put to death. After four years, the queen retired to Talkun, where she built a new palace, the site of which is still preserved by tradition. The crown prince remained at Hantháwati, where he carried on the duties of government, but once a month he came to pay his respects to the queen. Sheng-Tsáu-bú, after reigning three years at Ta-kun, died at the age of sixty-five years. Her name is held in high honour among the people to this day; and a national festival to her memory is celebrated once a year at Rangoon.

The crown prince Dhammá Dzedi was consecrated king. Some nobles were discontented as he had no hereditary right; but when they saw how well he ruled the country, they were reconciled to him. He is celebrated in the history of Pegu for his great wisdom. Numerous instances are given of the difficult questions which he solved, and the decisions he gave in various legal suits. Embassies came to him from China, Siam, Ava, Hau (?), and Ceylon. He was earnest in religion. He made no wars, but extended the boundary of his kingdom east of the Than-lwin, establishing the district of Mháing-lun-gyi. His subjects believed that he could make gold. He died after a prosperous reign of thirty-one years, in the year 853, or A. D. 1491. He received the funeral honours of a Tsekya-wati (Chakrawartti), or universal monarch, and a pagoda was built over his bones, which was crowned and gilded all over, as if it were an object of worship.

He was succeeded by his son Binya Ran, whose mother was the daughter of Sheng-tsáu-bú. During the long reign of this king, nothing is recorded as to intercourse with foreign countries, which had been so prominent in his father's time. He made a progress up the Eráwati at the head of a large army, which is called a pilgrimage to the Shwé-zí-gun pagoda at Pú-gán. When passing Prome, he was received with high honour by the ruler of that city, who appears then to have been an independent prince. At this time, the king of Ava had little power beyond his own city. In the Burmese history, it is stated that Binya Ran made an attack on a fort built by the king of Táungu, but this is not mentioned in the Peguan history. Binya Ran died in the year 888 (A. D. 1526), after a reign of thirty-five years.

\* For many centuries the servitors and warders of pagodas in Burma have been slaves, that is, persons condemned to the occupation, or descendants of such persons. They are degraded outcasts among the general population. Joshua condemned the Gibeonites to similar occupation. See Book of Joshua, chapter ix. 27.



This king had appointed one of his younger sons to succeed him. This was done through the influence of the mother, but the child was put to death the day his father died, and another son, named Ta-ká-rwut-bi, who was fifteen years of age, ascended the throne. He paid no attention to the affairs of the kingdom, but passed his time in frivolous amusements with evil companions. He disregarded all warnings, and as many evil portents appeared, and even a flaming comet waved in the sky, the people dreaded some dire disaster. At this time Meng-ta-ra Shwé-htí, called Ta-beng Shwé-htí, was the king of Táungu, having succeeded his father in the year 892, when he was only sixteen years of age. Táungu, from being an insignificant state, had slowly risen to importance, and when Ava fell to a race of Shan kings, the rulers of Táungu gradually came to be considered the representatives of the ancient Burmese monarchy. Binya Ran, no doubt, had made an attack on Táungu which had been repelled. The young king, a warlike and ambitious prince, determined to avenge the insult. His first attack on Pegu was made in the year 896. It was unsuccessful, but for four successive years he led his armies against his enemy. At last in the year 900 (A. D. 1538), he mastered the capital Hanthá-wati.\* Takárwutbi is said in the Burmese history to have retired to Prome, where he was kindly received by the king; and it is added that the king of Ava, Tho-han-bwá brought a Shan army to his assistance. But Tabeng-Shwé-htí appeared with an army near Prome, and a battle was fought, chiefly by the flotillas on the Eráwati, in which he was victorious. But he does not appear to have been strong enough to take Prome; for he retired down the river, and no action was taken to follow him. The unfortunate king of Pegu, unable to induce his allies to support him further, marched down with a small force, and lost his life in the jungle of his native country. In the Talaing history is stated that the king of Ava, who is referred to merely as a Shan Tsáu-bwá, came down to Pegu with an army to assist Takárwutbi, but as they could not agree to the term of an alliance, the former retreated without doing anything. The king of Pegu then died of sickness in the jungle of the district of Engabu. This was in the year 902 (A. D. 1540), and the Shan royal line of Pegu, which had been established by Wa-re-ru in A. D. 1287, became extinct. The new dynasty pursuing a reckless career of conquest, raised the kingdom to a height of dazzling, but false, prosperity, which excited the astonishment of European travellers. But in less than half a century, the country was utterly exhausted, and the population so reduced by war, pestilence, and famine, that to this day it has not recovered.

The narrative having reached thus far into the sixteenth century, when

\* These destructive wars which ended in the conquest of Pegu by the king of Táungu, are described in the Burmese history. See Journal, As. Soc. Bengal, Vol. XXXVIII, for 1869.



European voyagers appeared in Burma and Pegu, it is desirable to relate what can be gathered regarding those countries from the narratives of travellers which have come down to us. They give, as might be expected, an insight into the condition of the people, which is not to be obtained from the native chronicles. Up to the beginning of the sixteenth century, European travellers had arrived in Indo-China, either by land, by sea from India, or after the Cape of Good Hope route was discovered, from Malacca. At that time there appears to have been no jealousy felt at their presence. That feeling was developed throughout Southern Asia by the conquests of the Portuguese, the Dutch, and the British, by which European dominion seemed, to the minds of the people, to loom like a dark cloud over their destiny.

After Marco Polo, who came into Burma from Yunan towards the close of the thirteenth century, the earliest traveller's narrative which has come down to us, is that of Nicolo Conti, a Venetian, whose travels have been edited by Mr. R. St. Major, for the Hakluyt Society. This traveller, leaving Europe on a trading expedition, arrived by land at Bussora, and sailing from the Persian Gulf reached Cambay. From thence he went to Ceylon and Sumatra, and sailed up the Malay coast to Ternasseri, now Tenasserim. Passing then by Pegu, he went to Bengal entering the mouth of the river Ganges. Remaining some months in India, he returned southward, and sailing apparently from Chittagong, came to the city of Rachan (Rakháing, or in the modern Europeanized form, Arakan), and river of the same name.

From this city he travelled through "mountains void of all habitations, "for the space of seventeen days, and then through open plains for fifteen "days more, at the end of which time he arrived at a river larger than the "Ganges, which is called by the inhabitants 'Dava.' Having sailed up this "river for the space of a month, he arrived at a city more noble than all "the others, called Ava, and the circumference of which is fifteen miles."

It appears most probable from the narrative that Conti was at Ava about the year 1430, which would be in the reign of Monhyin Meng-ta-rá, the eighth in the list of kings who reigned in Ava. The river Dava, it has been suggested by Colonel Yule, was originally written "Fiume d' Ava," the name told to Conti for the Eráwati on first reaching that river, after having crossed the Yoma Mountains. The country of Upper Burma he calls 'Macinus,' derived from Maháchín, or Máchín, a name which Colonel Yule has shown to have been applied by Muhammadan voyagers both to China and Indo-China. Conti, no doubt, was in company with Indian traders from Bengal, from whom he would learn this name. In the *Aín Akbarí*, it is stated that former writers called Pegu 'Chín.' Conti describes very correctly two methods employed in Burma for catching wild elephants.



He mentions the habit of tattooing the body, and says that the women practise it as well as the men, which is not now the case. The king, he says, has ten thousand elephants, which he uses in his wars. "They fix castles on their backs, from which eight or ten men fight with javelins, bows, and those weapons which we call crossbows." The number ten thousand is, no doubt, an exaggeration, probably double the actual number. From Ava, Conti proceeded towards the sea, "and at the expiration of seventeen days he arrived at the mouth of a moderately sized river, where there is a port, called Xeythona, and having entered the river, at the end of ten days, he arrived at a very populous city, called Panconia, the circumference of which is twelve miles."

It is not said by what route Conti went from Ava, but apparently it was by land to Raméthen and Táungu. The port Xeythona may possibly be the town of Sittang, but that town being situated on the river of the same name some seventy or eighty miles from its mouth, and the river not being navigable from the sea, it can scarcely be called "a port." The name, therefore, is more probably meant for Tha-htun, which was an ancient and celebrated port, and was still to some extent frequented. It is now mentioned for the last time in the history of Pegu. The populous city of Panconia, a misprint probably for Pauconia, is no doubt Pegu, or, as Conti would have heard it called, Pa-go or Ba-go. The traveller makes no mention of any war between the kings of Ava and Pegu, and from A. D. 1426 for many years no such war is recorded in the native histories. Conti's narrative agrees well with the local histories, and from his notices of the people, the truth of his statements is evident, even when he mistakes some of the native customs. Thus he observes of the Burmese: "All worship idols; nevertheless, when they rise in the morning from their beds, they turn towards the east, and with their hands joined together say, 'God in Trinity and his law defend us.'" All pious Buddhists in Burma, on first awaking in the morning, invoke or bless the three precious objects "Budha, his law, and his disciples;" but, of course, there is here no reference to God in Trinity.

The next traveller who claims our notice, is Athanasius Nitikin, a Russian, who came to India between 1428 and 1474. He mentions having gone from Ceylon to Shibait and Pegu. He merely observes of the latter—"It is no inconsiderable port, principally inhabited by Indian dervishes." He perhaps means that the principal merchants were Indians, as he says the products of the country were sold by the dervishes. Why he should style them *dervish* is not apparent, but probably most of the Muhammadan merchants assumed the title of Háji.

Hieronimo de Santa Stefano, a Genoese, came by the Red Sea to India, to the port of Calicut; thence to Ceylon and Coromandel, which latter



probably means a port on the Krishna or Godávari. From Coromandel, the traveller came to Pegu, and records that he was detained there for a year and a half, and that his companion Hieronimo Adorno died on St. John's day, 1496. He was buried "in a certain ruined church, frequented by none," which refers no doubt to a deserted Buddhist kyaung, or monastery. • Pegu he calls Lower India, and says of the capital:—"Here is a great lord who "possesses more than ten thousand elephants, and every year he breeds five "hundred of them. This country is fifteen days journey by land from another, "called Ava, in which grow rubies, and many other precious stones. Our "wish was to go to this place, but at that time, the two princes were at "war, so that no one was allowed to go from the one place to the other. "Thus we were compelled to sell the merchandize which we had in the city "of Pegu, which were of such a sort that only the lord of the city could "purchase them. \* \* \* \* The price amounted to two thousand "ducats, and as we wished to be paid, we were compelled, by reason of the "troubles and intrigues occasioned by the aforesaid war, to remain there a "year and a half, all which time we had daily to solicit at the house of the "said lord." At this time, 1496, Binya Ran was king of Pegu. It does not appear from the native histories that he had any direct war with the king of Ava, but he did attack Dwárawati, a fort belonging to Táungu about this very year 1496; and as the king of Ava affected to consider himself the superior of the king of Táungu, some expectation of hostilities may have existed. An expedition was made up the Eráwati a few years later, as we shall see presently. Though the traveller complains of the delay in payment being made for his merchandize, yet he appears to have been treated justly. The property of his deceased companion was seized as a forfeit to the king, such being the ancient law of Burma in the case of foreigners dying in the country. He says, "I was so grieved and afflicted by his death, that it was "a great chance I had not followed him, but \* \* \* \* being consoled "by some men of worth, I exerted myself to recover our property. In this "I succeeded, but with great trouble and expense."

The same king Binya Ran, who reigned from A. D. 1493 to 1526, appears from the account of another traveller, Lewes Vertomannus of Rome, to have been, as he expresses it, "of great magnificence and generosity." This traveller came to Pegu about the year 1503. In his narrative, as translated in Hakluyt, he states that he "came to Pego from Bengalla with "a Persian. The city is walled and the houses buylded and very sayre of "stone and lime. Here are but few elephants. There are exceeding great "reeds, as big as the body of a gross man, or a tub. The king useth not "such pomps and magnificence as doth the king of Calicut, but is of such "humanity and affability, that a child may come to his presence and speak "with him. It is in a manner incredible to speak of the rich jewels, pre-



“cious stones, pearls, and especially rubies which he weareth, surmounting  
“in value any great city. Not long after, news were brought that the king  
“of Ava was coming with a mighty force, whom the king with an innumer-  
“able army went to resist.” This army probably was the force which Bin-  
ya Ran led up the Eriwati to Prome, and then on to Pugán. This expedi-  
tion may have been made to resist an anticipated attack, but in the Taláing  
history, it is represented, with some dubiousness, as a pilgrimage to the pago-  
das at those cities. When Vertomannus says, “here are not many ele-  
phants,” he must mean in the city, for the great strength of Pegu consist-  
ed in elephants; or they may all have been gathered at a distance to accom-  
pany the army.

Early in the sixteenth century, we have notices of Pegu by Portuguese  
voyagers, who under Vasco de Gama had doubled the Cape of Good Hope.  
Their actions in Pegu are recorded in the history of “The Portuguese in  
India, by Manuel de Faria y Sousa, translated by Stevens into English, and  
printed at London in 1695.” The Portuguese were established at Malacca  
under Albuquerque in 1510. In 1517, John de Sylvera went to Bengal  
with four sail. He was invited by the king of Arakan to his country, and  
he appears to have gone to Chatigam, then a port of that king’s dominions.  
In 1519, it is recorded that Antony Correa, “concluded a treaty with the  
“king of Pegu at Martavan, when peace was sworn to by both parties with  
“solemn ceremonies. The metropolis of the kingdom is Bagao, corruptly  
“called Pegu.”

We have seen in the Taláing history that the last king of Pegu was  
Ta-ka-rwut-bi, who succeeded to the throne in 1526, and was conquered by  
the king of Táungu, styled Ta-beng Shwé-hti, the capital having surrendered  
in 1538. How a Portuguese force happened to be present on this occasion,  
but which is not noticed in the native histories, is thus stated by Sousa,  
“Ferdinand de Morales was sent by the Viceroy with a great galeon to  
“trade at Pegu. Pegu was then invaded by the king of Brama. Brama had  
“been tributary to Pegu, but had revolted. The cause of this was that 30,000  
“Bramas laboured in the king of Pegu’s works. The king used to visit  
“them, attended only by his women. They suddenly rose and murdered  
“the king, and fled to their own country. Then Para Mandara, king of the  
“Bramas, rose, recovered his own kingdom of Ava, and overrun the Laos  
“and other countries tributary to Pegu. The king of Brama now invaded  
“Pegu with such a power, that the two armies consisted of two millions of  
“men with 10,000 elephants. Morales went into a galliot, and commanding  
“the fleet of Pegu, made a great havock among the enemy’s ships. Brama  
“came on by land like a torrent, carrying all before him, and his fleet  
“covering the river, though as great as the Ganges. With this power he  
“easily gained the city, and the kingdom of Pegu. At the point Ginamarre-



"ca was a furious, bloody, and desperate fight. But the Pegus overpowered by the Bramas deserted Morales, who alone in his galliot maintained himself against the enemies, performing wonders with vast slaughter of them; but oppressed by the multitude, he was killed." Of the Peguans generally it is remarked that "their bodies are all wrought blue with hot iron down to their knees. In general, they are not only not civilized, but very brutal."

In this account it should be observed that the Portuguese historian, writing more than a century after the events described, and probably from imperfect documents, in addition to evident exaggerations on points where the European actors in this tragedy might have furnished more accurate information, has been led to narrate supposed events, which caused or preceded the invasion of Pegu by "the king of Brama." These are in themselves highly improbable, and not to be found in the native histories. The king of Brama is, in fact, Meng-ta-rá, or Tabeng Shwé htí, king of Táungu, who, as has already been stated, had by a remarkable train of events come to represent the national party of Burma, against the Shan dynasties of Ava and Pegu. The term Pará Mandara (Phrá Mengta-rá) is a title equivalent to the king's Majesty. In the native histories no distinct cause is alleged for the invasion of Pegu by the king of Táungu; but the relations between the two monarchies, for about a century before, sufficiently account for the event. If "Brama" of Táungu had not been exactly tributary to Pegu, he had for several generations, when it was convenient, depended on the latter to support him in resisting Ava. By the Burmese history, the chief of Táungu, so early as the year 788 (A. D., 1426), had offered to become tributary to Binya Rankit, if he helped him to the throne of Ava, which the chief of Táungu claimed as his right. The two kings had entered into an alliance, and in 1481, the then king of Táungu, fearful of an attack from Ava, sent his wife and children for safety to Pegu. Afterwards, the two kings quarrelled in A. D. 1496, or thereabouts; the king of Pegu attacked Dwárawati, a fort and city belonging to Táungu, but the expedition was unsuccessful. Such an incident as Burmese prisoners or labourers when at work, being visited by a king of Pegu unaccompanied by male attendants, may be regarded as in the highest degree improbable. There is no trace of such an event or of the king's death under such circumstances in the Taláing or Burmese history. The last king of Pegu, of the Shan dynasty, who was dethroned by Tabeng Shwé htí, died, as we have seen, in the jungle, having no army, and the king of Ava having failed to give him further support. Some rumours of his having been assassinated in the jungle may have reached the Portuguese, and have given rise to the tale recorded. "Para Mandara, king of the Bramas" who conquered Pegu, was not the king who recovered his own "kingdom of Ava, and overran the Laos and other countries tribu-





tary to Pegu." Those conquests were accomplished many years after the conquest of Pegu, by the successor of Tabeng Shwé hti, who is generally styled Bureng Náung, and by the Portuguese historian 'Branginoco' and 'Chaumigrem.' Both of these kings are mentioned in the Taláing history with the title Meng-ta-rá (to which Phrá would be added in speaking of them); both invaded Siam, and both besieged Prome, so that the error which confused one with the other, is not to be wondered at.

It is doubtful whether Bureng Náung had any hereditary right to succeed Tabeng Shwé hti. His claim seems to have been his great military talent, and his marriage with the king's sister.

The following statement is taken from the *Universal History*, Vol. VI., published in London in 1781. It professes to derive its information regarding Pegu and the adjoining countries from Portuguese, Dutch, and English authorities. "In 1519, Antony Correa was sent to Bressagukan (Binya "Ran), king of Pegu, to conclude a treaty. That king was slain, in 1539, "by some Barma labourers who were furnished by Para Mandara, king of "the Barmas. The cause of the rising is not stated. The king of Barma "now invaded the country, and Dacha Rupi, the heir to the deceased, was "unable to oppose him. At this time, Ferdinand de Morales arrived with "a great galleon, sent by the Viceroy of Goa to trade. He took the side "of Dacha Rupi, but they could not resist the overwhelming numbers of "the Barmas, and De Morales was slain. This occurred in 1539."

Here we have the names of the two last kings of Pegu, one considerably distorted, and it is Binya Ran who is here said to have been killed by the Burmese labourers in 1539. But that king as we have seen, died peaceably before the great troubles came in 1526. His son and successor Takárwutbi, whom we recognise in Dacha Rupi, died (or was killed) in the jungle in 1539 (or 1540, by the Taláing history), and this date with his flight and death in the jungle seems to give the clue to the origin of the story of the king killed by Burmese labourers.

Tabeng Shwé hti, having taken the city of Hantháwati, proceeded to lay siege to Muttama. This city, which lies to the south-west of the ancient capital, and at a travelling distance of nearly one hundred miles, was then governed by Tsau-bi-nyá, brother-in-law of the conquered king, who had the rank of a Viceroy. The siege operations against Muttama, or Martaban, are related in detail in the Burmese Mahá Rádzáweng,\* but the Taláing narrative is brief, and draws a veil over the final defeat of the Mun race. The besieging army numbered 130,000 men, with numerous vessels of every description. The whole was under the command of Bureng Náung, the king's brother-in-law, who is called by the Portuguese historian 'Branginoco.' Not a word is said in either of the native histories of Europeans being in the service of the

\* See *History of Burma race*, *Journal, As. Society of Bengal*, Vol. XXXVIII, for 1869.



king of Pegu on this occasion, but it is mentioned that several ships were moored in the river opposite to Muttama, for the defence of the city, which were manned by Muhammadans, called on this occasion in the Burmese history 'Kulá-Pánthé.\*' The native histories make the siege occur in the year 1540, while the Portuguese account places it in 1544. The first is probably correct; the dates in the Portuguese history are not to be depended on. But the story of the siege is told in simple language, and reveals the dreadful doom of the Viceroy and his family, inflicted by the pitiless conqueror, which is passed over in silence by the native historians.† The account is as follows: "In the year 1544, the king of the Bramas, by sea and land, "besieged the city of Martavam, metropolis of the great and flourishing "kingdom of that name, whose yearly revenue was three millions of gold. "Chaubainaa was then king, and Nhay Canotoo Queen thereof, who from "the height of fortune fell to the depth of misery. The Brama fleet "consisted of 700 sail, 100 of them great galleys. In them were 700 Por- "tugueses, commanded by one John Cayero, reputed a man of valour and "conduct. After a siege of seven months and five assaults, wherein the "Bramas lost 12000 men, Chaubainaa found it was impossible to with- "stand that power; provision being already so scarce, that they had eaten "3000 elephants. He offered to capitulate, but no conditions were allowed by "the besieger. He, therefore, resolved to make use of the Portugueses, to "whom he had always been very just and serviceable. But man never re- "members favours received in prosperity of those he sees in adversity."

The history then narrates how the unfortunate Viceroy entered into communication with Cayero, through Seixas, a Portuguese in his service, and offered, if supported by all of them, to become the vassal of the king of Portugal. But this was rejected, and a large body of men from the city having deserted, discovered the design to the besieger. The narrative proceeds: "The king thus betrayed, capitulated with the enemy for his own "and the lives of his wife and children, and leave to end his days in retire-

\* The Burmese historian has somewhat carelessly applied the word Pán-thé to Muhammadans from India and Persia. In the present day, it is used to designate the Muhammadans of Yunan only. All Muhammadans from countries west of Burma are called 'Pa-thí,' which is believed to be a corruption of 'Fársí.' The word Pánthé has probably a different origin. The Burmese became acquainted with the Muhammadans of Yunan several centuries ago, from the caravans of those people trading to Ava. As their religion, and some of their customs, differed from those of the Chinese, they, to avoid the hateful name of foreigner, spoke of themselves as being Pan-ti or Pun-ti = indigenous, and thus, it is believed, the name originated in Burma.

† In the paper on the History of the Burma race, J. A. S. Bengal, Vol. XXXVIII, of 1869, it was stated that the governor of Martaban was pardoned by the conqueror. I am now satisfied that this was not the meaning of a somewhat obscure sentence in the Burmese history.



“ment. This and more was granted easily, because the conqueror designed  
 “to perform no part of the promise. From the city gate to the king of  
 “Brama’s tent was a league distance, all which way was a lane of many  
 “thousand musketers of sundry nations, and next the gate were posted the  
 “Portugueses. The first came out was the Queen in a chair with her two  
 “daughters, and two sons in two others. About them forty beautiful ladies  
 “led by as many ancient ones, encompassed by Talegrepos (a sort of reli-  
 “gious men among them, habited like our Capuchins), who prayed and com-  
 “forted them. Then came the king guarded by his enemies, seated on a  
 “small she-elephant, cloathed in black velvet; his head, beard, and eyebrows  
 “shaved, and a rope about his neck, which moved even the enemy to com-  
 “passion. The unfortunate king seeing the Portugueses, would not stir  
 “one foot till they were removed from that post, and that done went on.  
 “Being come before the king of Brama, he cast himself at his feet, but not  
 “being able to speak for grief, the Raolim of Mounay Talaypor, Chief Priest  
 “of those Gentiles, and esteemed a saint, made an harangue in his behalf,  
 “of force to have moved to compassion any other but that obdurate king.  
 “The miserable king, his queen, children, and ladies were secured. The two  
 “following days were spent in removing the treasure, at which a thousand  
 “men laboured, and it amounted to 100 millions of gold. The third day, the  
 “army had liberty to plunder, which lasted four days, and was valued 12  
 “millions. Next, the city was burnt, wherein perished by fire and sword  
 “above 60,000 souls, besides as many made slaves; 2000 temples, and  
 “40,000 houses were laid even with the ground. There were in the town  
 “6000 pieces of cannon, 100,000 quintals of pepper, and as much of other  
 “spices. The morning that followed this destruction, there appeared on a  
 “hill, called Beydoo, 21 gibbets, with a strong guard of horse. Thither was  
 “led the queen with her children and ladies, in all making 140, and were all  
 “hanged up by the feet. The king and fifty men of great quality were  
 “cast into the sea with stones about their necks. The army seeing this  
 “barbarity mutinied, and the king was in great danger. He leaving peo-  
 “ple to rebuild the ruined city, returned to Pegu with the rest of his army,  
 “and among them John Cayero and his 700 Portugueses. Of these four  
 “stayed at Martavam.”

King Tabeng Shwé hti, before his departure for Pegu city, received the submission of the governor of Maulamyáing, and took the precaution to guard the frontier towards Zimmé. At the ancient capital he was consecrated king. He put the fortifications in repair, and with great solemnity placed a new hti on the summit of the Shwé mau dau pagoda, and afterwards one on that of the Shwé Dagon. He thus proclaimed his sovereignty of the ancient Taláing kingdom. But he determined to push his conquests without delay. As a first step towards asserting his right to the throne of Ava,



he collected an army to advance against Prome, where Meng Kháung was tributary king under the Shan king of Ava, Thohánbwá, whose daughter he had married. Tabeng Shwé htí proceeded with his army up the Eráwati, Bureng Náung being the general in command. He invested Prome by land and water, but did not make any assault, as the place was strong and well defended with guns. While thus engaged, news arrived that the Shan king of Ava was marching down with a large army to the relief of Prome. Half of the army was sent to meet this force. It was under Bureng Náung, who attacked the Ava force with his accustomed vigour and utterly defeated it.\* A force from Arakan also, brought to assist the besieged, was compelled to fly. The besieging force having sustained heavy loss, was compelled to trust to famine for the surrender of the city. The unfortunate king of Prome was at length forced to surrender, and proceeding to his conqueror's camp, attended by the superior of the Buddhist monks, implored mercy for himself and family. The native histories place this event in the year 904, or June 1542, the siege having lasted for seven months. The king and queen, it is stated in the Burmese history, were sent as prisoners to Táungu, and no more mention is made of them. The Portuguese history states that the siege occurred in 1546. This is incorrect, but the events recorded may, no doubt, be relied on. The queen of Prome, who was older than her husband, appears to have had the direction of affairs in the city. She offered to pay tribute, and hold the crown from Tabeng Shwé htí. But "the king insisted that the queen "should put herself into his hands with all her treasure; but she knowing "how perfidious he was, resolved to defend herself. He gave several assaults, "and by the sword and a plague that raged in the army, lost 80,000 "men, among which were 500 Portuguesees." It is also stated that a mount was raised overlooking the town, and being well armed with cannon left no place of safety to the besieged. But in a sally, the besieged destroyed the mount, and carried off 80 cannons. Tabeng Shwé htí on this occasion was wounded, and "in a rage slew 2000 Portuguesees that were upon the guard as negligent of their duty." Probably there is an error here in the number; 200 artillery men being more likely intended. The savage treatment of the king and queen is very different to what is narrated by the Burmese historian. "The queen was publicly whipped and delivered up to the lust of

\* The Portuguese history has caused some confusion regarding the events which led to this siege by stating—"The king of Brama was alarmed by him of Siam, who attempted to recover the kingdom of Tangu, which had been wrested from him." For Siam here must be understood the northern Shan or Shian confederation, now led by the king of Ava. This king did claim the allegiance of Táungu, which state had formerly been subject to his predecessors. It was never claimed by Siam. The Siamese and Shians both belong to the Tháí race, and the early European writers may thus occasionally have confused the two. In Father Sangermano's work on Burma, the Shan people are always called 'Sciam'



"the soldiers until she died. The one repulse took the sword to her dead body and cast into the river. The same day all to the sword O gentlemen, after stakes were drove through their bodies. I am sure."

Tabeng Shwé hti appointed one of the brothers of Bureng Náung tributary king of Prome, with the title of Thā-dōdhammā Rādzá. He then returned to Hantháwati, where he endeavored by works of religious merit to atone for the guilt of bloodshed. He cast a pure gold image of Budha, and next built a new palace. But he was not left long in repose. In Ava on the death of Tho-hanbwá, the chief of Unbáung named Khun-mháing-nge had been elected to the throne. He determined to retake Prome. He marched down at the head of an army formed of the troops of seven Shan chiefs. Tabeng Shwé hti quickly came to the rescue of his tributary king. The Shans once more were defeated near Prome, and Bureng Náung followed them up the Eráwati, capturing all the cities as far as Pagan. He also appeared before Ava, but apparently thinking it too strong to be safely attacked, the army returned to Pagan, and there he established his frontier post.\* The king having taken measures for the safety of his army, returned to Pegu, where he arrived in the year 906, or August, 1544. In the following year, he was again solemnly consecrated, assuming the title of King of Kings, which may be translated 'Emperor.' The tributary kings of Prome, Táungu, and Martaban were present to do homage; and Bureng Náung was formally declared Ein-Shé-meng, or crown prince.

About this time, the king of Arakan died, and Tabeng Shwé hti made an expedition to that country, to place his brother on the throne. The emperor appears to have failed to take the capital, but eventually the son of the late king, styled Mahā Dhammarit, on agreeing to present gold and silver flowers, was confirmed on the throne, and the emperor then returned to Pegu. This expedition occurred in the year 908, or A. D., 1546-47. The return of the emperor seems to have been hastened by news of a movement, which this time was really made by the king of Siam. That monarch had lately taken possession of Tavoy, a town which for many years had been a disputed possession between the two countries. The emperor determined to punish this aggression, not by seizing the town in question, but by marching on the capital of his enemy. All the arrangements were as usual entrusted to Bureng Náung. The emperor left his capital in the year 910 (November, 1548), and proceeded to Muttama (Martaban), where the army had already

\* This expedition up the Eráwati, called the 'Queytor' by the Portuguese historian, has by him been mixed up with the siege of Prome two years earlier. It is said that the invader returned from Ava, because he heard the king of Siam was coming to its relief. This can only allude to the northern Shans. In the native histories, no reason is given for the retreat from Ava on this occasion. The Portuguese historian then refers to the Empire of Calaminam, and to affairs which occurred many years later, but of which the writer evidently had a very confused notion.



assembled. The army moved from that city to Myawati on the Tháung-ym River, to the upper course of the Mo-nam, the 'mother of waters,' river Yodaya, the then capital of Siam, was situated. The army occupied in succession the fortified cities of Kamánbaik, Tháuk-katé, and Pi-tha-láuk, and then moved down by land and water to the capital. But from the strength of the wall, the deep and broad moat, the numerous water courses, and the ships moored and armed with guns manned by foreigners, the city was deemed to be too strong for an assault, and the emperor, with the advice of Bureng Náung, determined to retire. In retreating towards Kamánbaik ('Camambée' of the Portuguese) and the other places they had captured, they were attacked by the Siamese, but entirely defeated them, and even took prisoner a son-in-law of the king's. According to the Burmese history, the king of Siam then entered into negotiations and promised, if his son-in-law were released, to pay tribute. This was agreed to by Tabeng Shwé hti, and the invading army then retired. The king returned to his capital in April, 1549.

The Portuguese history gives two accounts of this expedition; one in the first volume, in which it is (wrongly) represented as the second invasion of Siam by Tabeng Shwé hti, and states that the Portuguese who accompanied the army, were only 180 men under James Soarez; and another more detailed account in the third volume, in which the Portuguese force is stated to have been one thousand. Both accounts give the year 1549 as the date of the expedition, and the Burmese history states that it lasted from November 1548 to April, 1549. In the Burmese and Taláing histories, not a word is said as to the leader of the Portuguese, James Soarez de Melo, though they speak generally of foreigners. But there is no doubt that the guns, which were worked by the Portuguese, were regarded with great importance by the emperor. The Portuguese history after relating that an illegitimate son of a murdered king of Siam had succeeded to the throne, continues thus:—"The king of Brama, or Pegu, for it is the same, seeing the affairs of Siam in confusion, resolved to conquer that kingdom. He raised an army of 800,000 men, among which were 1000 Portuguese, 40,000 horse, 60,000 musqueteers, 20,000 elephants, 1000 cannon drawn by as many yoke of oxen and Abadas, and 1000 waggons of ammunition drawn by buffaloes. The Portuguese were commanded by James Soarez de Melo, called the Gallego, who came to India in the year 1518; in 1542, was pyrating about Mozambique; in 1547, was at the port of Malacca; and in 1549, being in the service of this king, was worth four millions in jewels and other things of value, had a pension of 200,000 rupees yearly, and the title of the king's brother, was supreme governor of all his dominions, and general of his army." The king marched with that

\* The position of Soarez is here perhaps exaggerated; but that he held a high





“prodigious multitude, and after one repulse took the fort of Tapuram, defended by 2000 Siamites, putting all to the sword with the loss of 3,000 men. By the way the city of Tuvopisam surrendered, and he sat down before Odiaa, the capital of Siam, which seemed to make no account of that great power. James Soarez, who commanded in chief, surprized hereat, gave an assault and lost 10,000 men. Another attempt was made with elephants, but with no better success. \* \* \* \* \* Five months being spent with the loss of 150,000 men, news was brought that Xemindoo, a man of great parts had rebelled at Pegu and killed 15,000 men that opposed him. As soon as this was known in the camp, 120,000 Pegues deserted, in hatred to that foreign king that oppressed, and to the insolence of James Soarez who commanded them.”

It appears that there were some Portuguese in the city under the command of James Pereyra, who served the guns, and probably caused the failure of the attack. Certain differences are apparent in the accounts of the native historians and of the Portuguese, as to the causes which led to the retreat of the Burmese army. The former attribute it to the prudence of the king on seeing the great difficulties before him; and omit to mention the failure of an assault. The insurrection of Xemindoo in Pegu at this time also is not mentioned. But it broke out, according both to the Burmese and Taláing histories, immediately after the return of the army, and possibly the presence of the discontented Taláing soldiers was deemed a favourable opportunity. Before the insurrection, the Burmese history relates that king Tabeng Shwé htí had become utterly incapable from constant drunkenness, the liquor being supplied by a nephew of James Soarez, a youth to whom the emperor had taken a liking, and who was his constant companion.\* At length, Bureng Náung banished this young man from the country, and then took the whole power into his own hands. His father, who was the tributary king of Táungu, had died in the previous year, and one of his brothers or kinsmen had been appointed with the title of Meng Khaung. Bureng Náung was the virtual ruler of the empire, and the acknowledged successor of the emperor, to whom he appears to have been a faithful officer.

It was in the month Pyatho, 911 (December, 1540), according to the Burmese history, that the insurrection of Thamin-htau, or Thaminhtau rá ma, broke out. He is called by the Portuguese ‘Xemindoo.’ He is represented in the Taláing history as being a son of Binya Ran, the last king but one of the dynasty of Wararu, by an inferior woman of the palace. He had been

post is apparent from the Burmese history, in which subsequently his name occurs as Pits-tsa-rit, with the affix “Meng,” or Lord. His miserable end will be seen hereafter.

\* In a royal order, issued not very long ago, degrading an officer of high rank, this historical incident was referred to, as illustrating the evil effects of drinking intoxicating liquor, and the danger of familiar association with foreigners.



a Rahán, but threw off his monastic habit and became a layman. He then took the name of Thaminhtau, and began to collect followers in the delta of the Eráwati, where the Mun race was most numerous, and where a rebel force could most easily avoid attack. He was at first very successful, having taken Dála and even Syriam; he then marched boldly to attack Makau, a fort only sixteen miles south of the capital. Here he was attacked by troops sent from Hantháwati, and was defeated. He retreated to Syriam, where Bureng Náung routed his followers. He fled westward, and Bureng Náung followed him up, and fixed his head quarters at Dála, from whence he sent out parties in all directions to hunt down the fugitives. During this confusion, the emperor was under the care of the governor of Tsit-táung, who had the title of Thamin-tsau dwut, or Thamindurit. He is called by the Portuguese historian 'Xemin of Zatan.' This young man also was a scion of the Shan royal family of Pegu. He had been educated at the same kyoung as Thaminhtau, and was strongly recommended to the emperor by the Phungyí, or abbot, of the monastery. He was soon taken into favour, and was entirely trusted by Bureng Náung. His two younger brothers had appointments in the palace, one being commander of the emperor's bodyguard. The emperor had gone for change to a temporary palace at Pantarau, when a report was brought, no doubt to draw him away to a remote place, that a white elephant had been seen east of the Tsit-táung River, near the ancient city of Kátha. To capture a white elephant at this juncture would have a good effect on the whole people, and the emperor was easily inveigled into the jungle at the foot of the mountains. There he was murdered by one of the brothers of Thamindwut, in May, 1550. The latter at once proclaimed himself king at Tsit-táung, and soon after took possession of Hantháwati, where he was consecrated according to ancient custom.

Tabeng Shwé htí had reigned ten years in Táungu, his native kingdom, and ten years as emperor in Hantháwati. The Taláing history records that he made great gifts to the national pagodas of Shwé-maudau and Shwé Dagun; and that he constructed a road between Pegu and Táungu, with wells, zayáts, and gardens for the use of travellers. This road, which was well raised above the level of ordinary floods, still exists. He built a pagoda at Táungu, which was completed only the year before his death, as has been proved from an inscription on a silver scroll, discovered at that city a few years ago. The pagoda was built for the benefit, by means of the merit acquired by building it, of himself and family, and in memory of his father. He was only thirty-six years of age when he died.

Bureng Náung was at Dála when these events occurred, and finding the strength of the country against him, determined to march to Táungu. On the way he was joined by his wife who managed to escape from the city. When arrived at Táungu, he found that his brother Thi-ha-thu





would not open the gates to him. But all the best officers, Burma, Taláing, and Shan, had great confidence in him, and gathered to his camp. A force sufficient to blockade the city was thus collected. In Pegu, the struggle went on between the two Taláing chiefs, Thaminhtau and Thamindwut. The latter, in possession of the capital, exercised his authority with such cruelty, that the nobles called in his rival, who advanced with an army collected principally at Muttama. A battle was fought near the city in which Thaminhtau was victorious. Thamindwut was taken prisoner and beheaded. He had reigned for three months and a half. These events are thus recorded in the Portuguese history: "Xemindoo (Thaminhtau) rebelled against the king of Pegu (Tabeng Shwé htí), and sent James Soarez to suppress him. He followed him to the city of Cevadi, and he slipping by, got into Pegu,\* because the city sided with him. The queen fled to the castle,† where she was defended by twenty Portugueses till the king came and put the rebels to flight.‡ The army entered the city and put to the sword not only men, women, and children, but even the beasts; nothing escaped, but what was within the liberty of James Soarez his house, which the king had ordered should be exempted.§ Above twelve thousand saved themselves therein. The plunder was unaccountable. James Soarez alone got above three millions. At his intercession, the king pardoned a Portuguese who had furnished Xemindoo with ammunition. Though the king escaped the hands of Xemindoo, he could not the villainy of Ximi-de-Zatan (Ximi is equivalent to a Duke, and he really is one of Satan's creating), who murdered him in the delightful city of Zatan.|| The traitor was immediately proclaimed king, and falling among the murdered Prince's men, killed three of those that belonged to James Soarez, who fled to the city Ova, and afterwards at Pegu was reconciled to this new king, till Xemindoo, who fled before, came on again with a powerful army. Ximi commanded James Soarez and his Portugueses to march with him against

\* The Portuguese historian here confuses Thaminhtau (Xemindoo) with Thamindwut (Ximindezaton). The first did not enter the city of Pegu until he had conquered the last; whereas Thamindwut entered the capital in little more than a month after the murder of the Emperor. Cevadi is Saráwadi, = Tharáwati.

† This may be either the queen of Tabeng Shwé htí or of Bureng. The latter as we have seen soon after joined her husband.

‡ This can only refer to Bureng Náung on his march to Táungu, when, though he was not attacked, he did not venture to enter Pegu city.

§ This sentence can only refer to the taking of the city by Thamindwut, when his army would be sure to plunder the city. The Portuguese historian has been puzzled by the numerous "kings," who in a short time enjoyed that title among the people.

|| Tabeng Shwé htí was murdered some distance from the city, but within the territory pertaining to Tsit-táung (= Zatan).



"the enemy ; but before he came thither, the punishment of his great in-  
 "lence reached him, as we shall see hereafter. Zatan was taken and beheaded  
 "by Xemindoo, who gave out it was for the killing of Soarez, as if the  
 "murder of the king had not been a more justifiable motive. Thus the  
 "first rebel possessed himself of the crown till Mandaragri,\* the late king's  
 "brother-in-law, claimed it in right of his wife, and coming to a battle,  
 "gave him such a total defeat, that Xemindoo fled to the mountains where  
 "he married a poor fellow's daughter. He discovered himself to her, and she  
 "revealed it to her father, at such time as great rewards were proposed to  
 "such as should discover him. The father-in-law delivered him up to the  
 "king who cut off his head."

In a subsequent part of the history, this story is again told, but with  
 some variations, and the battle between Xemindoo and the king (Bureng  
 Náung) is erroneously represented as having occurred before Xemin de Zatan  
 became king, thus antedating the event by more than a twelvemonth.†  
 The account is extracted, as it relates the fate of Soarez in the city of Pegu,  
 after he became "reconciled" to the usurper. "Xemindoo, was of the  
 "ancient blood royal of Pegu, a great preacher and esteemed a saint. He  
 "made a sermon so efficacious against the tyranny of princes and oppression  
 "of that kingdom, that he was taken out of the pulpit and proclaimed king,  
 "whereupon he slew 5,000 Bramas in the palace, seizing all the treasure, and  
 "in a few days all the strongholds in the kingdom submitted to him. The  
 "armies of the two kings met within two leagues of the city of Pegu. That  
 "of Brama consisted of 350,000 men, Xemindoo's of 600,000. Of the latter  
 "about 300,000 were slain, and 60,000 of the former. The victorious king  
 "entered Pegu, and contrary to agreement slew many, and seized great trea-  
 "sures. Meanwhile the city Martavam declares for Xemindoo, killing 2,000  
 "Bramas. Xemin of Zatan did the same in the city of that name. The king  
 "marched towards him, but he contrived to have him murdered by the way.‡  
 "This was the end of that tyrant. Xemin was proclaimed king by his party,  
 "and in nine days gathered 30,000 men. Chaumigrem,§ brother to the dead  
 "king plundered the city and palace, and fled to Táungu, where he was born.  
 "Xemin de Zatan became so odious by his ill-government, that in four months  
 "many of his subjects fled, and some joined with Xemindoo, who made an  
 "army of 60,000 men. Let us leave him awhile to relate the end of James

\* Mengta-ragyi, = Bureng Náung.

† Thaminttan was defeated at Makau, sixteen miles from Pegu, before the other  
 rebel had murdered the king. But that is evidently not the battle alluded to.

‡ As has already been seen, this entirely misrepresents the circumstances under  
 which Tabeng Shwé hti was murdered.

§ Chaumigrem is another name for Bureng Náung, but is here probably meant  
 for his half brother Thihathu, who left the capital when the king was murdered, and  
 retired to Táungu.



“ Soarez de Melo, after the wonderful rise already mentioned. James Soarez  
 “ passing by a rich merchant's house on the day after his daughter's wedding  
 “ and seeing the great beauty of the bride, attempted to carry her away by  
 “ force, killing the bridegroom and others who came to her rescue. Mean-  
 “ while the bride strangled herself. The father expecting no justice while  
 “ that king reigned, shut himself up, and never stirred abroad, till Xemin de  
 “ Zatan coming to the crown, he so lamented his wrong about the town,  
 “ that above 50,000 of the people gathered about him, crying out for justice.  
 “ The new king fearing some worse consequence, caused Soarez to be appre-  
 “ hended and delivered up to that rabble. This was accordingly performed,  
 “ and the multitude stoning him, he was in a minute buried under a heap  
 “ of rubbish. No sooner was that done, but they took the body from under  
 “ that pile, and tearing it in pieces, delivered it to the boys to drag about  
 “ the streets, they giving them alms for so doing. His house was plundered,  
 “ and the treasure found being much less than what was expected, it was  
 “ believed he had buried the rest. The new king, Xemin de Zatan, soon  
 “ followed James Soarez, for his subjects no longer able to bear his cruelty  
 “ and avarice, fled in great numbers to Xemindoo, who was now master of  
 “ some considerable towns. He marched to the city of Pegu with 200,000 men  
 “ and 5,000 elephants. Zatan met him with 800,000, and the fight was  
 “ long doubtful, till Gonsalo Neto, who with 80 Portuguesees followed  
 “ Xemindoo, killed Zatan with a musket shot, which opened the way for  
 “ Xemindoo into the city, where he was crowned on the 3rd February, 1550.  
 “ Gonsalo Neto received 10,000 crowns for that fortunate shot, and his  
 “ companions 5000.”

It may be well here to explain how the Portuguese historian has failed to recognise Bureng Náung when mentioned under other names or titles. He probably drew information from letters and reports sent by many different officers through a long series of years to the Viceroy at Goa, and these were not used for the history until about a century later. Bureng Náung was for ten years the general of the armies of Tabeng Shwé hti, and afterwards his successor. When he became emperor, he assumed different titles at different periods, and the writers of reports regarding him probably used these different titles, so that it would not be possible without some key to understand that they all referred to the same person. The term Bureng Náung is rendered ‘ Branginoco’ by the Portuguese, and in some accounts his actions, under this title as general, are attributed to him as king. Mandaragi is a common title for a king, used in conversation. The term ‘ Chaumigrem’ is for Tsheng-phyu-mya sheng, = Lord of many white elephants, one of the later titles assumed by Bureng Náung. The letter ‘ u’ in Chaumigrem, is a misprint for ‘ n.’

In another part of the Portuguese history, as we have seen, it was



stated that "Zatan was taken and beheaded." Yet the fortunate shot of Gonsalo Neto is told very circumstantially and can scarcely be an invention. Perhaps the wound inflicted led to his capture.

Thaminhtau was now declared king, and was consecrated after the ancient custom in the capital. He is henceforth called in the Taláing history 'Dzag-ga-li Meng.' The Taláing historian dwells fondly on the details of the consecration, which was the last received by a native sovereign in Pegu.

While these events were passing in Pegu, Bureng Náung had forced the city of Táungu to surrender. He forgave his half-brother Thihathu, who had refused to acknowledge him, and had taken the title of Meng Kháung. Bureng Náung then caused himself to be consecrated king, as successor to his father who had been tributary king of Táungu under the late emperor. He next determined to possess himself of Prome, where another of his brothers had, under Tabeng Shwé htí, been tributary king, but of which a noble, styled Thadothu, had possessed himself. He marched across the hills, and after some delay Prome was surrendered by treachery, and Thadothu was put to death. His brother Thado Dhammá Rádzá was then reinstated as tributary king. It was now the year 913 (A. D., 1551), and Bureng Náung had possession of Táungu, Prome, and the country of the Eráwati as far north as Pugán. In Ava, a struggle for supremacy was still going on among the Shan chiefs, and Bureng Náung deemed the time propitious for asserting his claim to that kingdom as the successor of Tabeng Shwé htí. But hearing of attacks from the Pegu side on his territory, he considered it prudent first to settle affairs there, and concentrated his forces for that purpose at Prome and Táungu. Just then Mobyé Meng, king of Ava, being conquered by Tsithu-kyau-hteng, had fled and taken refuge in Prome. Bureng Náung determined to invade Pegu from Táungu, and marched to that city, taking Mobyé Meng with him. He set out on his expedition in April, 1551. His army consisted of 110,000 men, 400 fighting elephants, and 5000 horses.

In Pegu Thaminhtau, according to the Taláing history, had entered the capital in August, 1550. Having placed his own adherents in the several districts of the delta, he, in November, marched against the governors of Martaban and Maulmain, who had refused to submit. Having subdued both without difficulty, he returned to Hantháwati. He received an embassy from the king of Arakan, and did everything possible to make himself popular, and above all, to acquire religious merit by gifts to the pagodas and monasteries. But hearing of the surrender of Prome to Bureng Náung, he knew he would soon have to fight for his kingdom; and it was not long after, that news was brought that Bureng Náung himself was marching down by land from Táungu, and that a force under the king of



Prome was coming by water. He determined not to await attack in the city. The army took post at Muanu to await the Burmese enemy, and the battle took place close to the capital. A portion of the city was set on fire during the engagement by a force detached for that purpose by Bureng Náung, in order to alarm the enemy. Thaminhtau fought with courage, but his army was defeated, and he was obliged to leave his elephant, and mount a horse to fly from the field. He fled to Dala. Bureng Náung entered the city on the following morning. The battle was fought in the latter end of April, 1551. There probably were Portuguese on both sides in this battle, but no detailed account of it is to be found in the Portuguese history. The clearest reference thereto is in the following passage—"Chau-migrem who, the year before, retired to (from) Pegu, hearing afterwards that Xemindoo was unprovided, marched against him, and obtaining the victory, brought that crown again under the subjection of the Bra-maes. Xemindoo, taken some time after, was publicly beheaded." And again we read in another volume—"The first rebel possessed himself of the crown, till Mandaragi, the late king's brother-in-law, claimed it in right of his wife, and coming to a battle, gave him such a total defeat that Xemindoo fled."

Most of the Taláing nobles submitted to the conqueror. On the third day after the battle, Bureng Náung started in pursuit of Thaminhtau, who was striving to rally his followers in the forests of the delta. Being at last compelled to fly, he once more assumed the dress of a Phungyi, or Buddhist monk, and took refuge in the district of Bassein. From thence he found means to fly with a few followers by boat to Muttama.

Bureng Náung remained at Bassein until August, 1551, settling the affairs of that part of the country, and then returned to Pegu city. His first care was to repair the holy buildings injured during the war, and he built a Dzé-di over the remains of Tabeng Shwé-hti. Not long after, the unfortunate Thaminhtau, having been betrayed, was brought in. Bureng Náung offered him his life, if he would make obeisance; but this, the Taláing history states, he refused to do, and he died of a wound he had already received. The Portuguese account says that he was beheaded; and the Burmese historian merely observes, "An evil-minded man, had an evil death."

Muttama having now been occupied, another of Bureng Náung's brothers was made tributary king with the title of Meng-re-tsi-thú. Bureng Náung assumed the title of King of Kings or Emperor; and his eldest son was declared Mahá Upá Rádzá, or Crown-prince. The emperor ruled over a wide extent of country, and prepared to assert his claim to the throne of Ava; for as the successor of Tabeng Shwé-hti he assumed the title of king of the Burma race, though neither of them had reigned in the country of Burma proper. An army was sent up the Eráwati in July, 1553, under the



command of the Crown-prince. Either this was intended only as a reconnoitring expedition, or the strength of the king of Ava, Tsi-thú kyau hteng, had been miscalculated. The Crown-prince advanced no further than Pugán, and was then recalled.

During this year great exertion had been made to build the palace, which was completed in November, when a grand festival was held. The emperor was then, as stated in the Taláing history, consecrated according to the ancient ceremonies. Numbers of boats were being built in all parts of Pegu, and provisions were collected along the Eráwati as far as Pugán, with a view to an advance to Ava. In July 1554, the son and the nephew of the king of Arakan arrived. The latter was married to one of the emperor's daughters, and the former to a daughter of the king of Muttama. In November, the army of invasion set forth. The Crown-prince was left at the capital as his father's representative. The army in two main columns, one of which accompanying the flotilla, proceeded up the Eráwati route. The other with which was the emperor, marched from the capital to Táungu. From that city, the emperor led a corps across the hills to Táung-dwen-gyi, and on to Pugán, where they joined the water column. The remainder marching from Táungu under the emperor's brothers, Meng Khaung, king of Táungu, and Meng rai kyau hteng, entrenched themselves to the south of the ancient capital Pányá, to await intelligence from the emperor. The main army by means of the flotilla crossed the Eráwati to the western bank, probably because provisions were more plentiful there than on the other. The march was continued along the right bank, and up the Khyendwen to Amyen, where that river was crossed. The army then marched to Tsagáing, situated on the Eráwati opposite to Ava. The emperor's first care was to communicate with his brothers who were entrenched near Pányá. Arrangements for an attack on the city having been made, the two brothers issued from their entrenched position, but were at once attached by Tsithu-kyau-hteng, the king of Ava. He was, however, defeated and forced to retire into the city. The emperor's army now crossed the river, and a combined attack was made. Ava was taken in March 1555, and the king, the last of the Shan dynasty, was made prisoner. He was well-treated and sent to Pegu. But two sons of the last native king of Pegu who were found here, were put to death. The emperor's brother Meng-rai-kyau-hteng was made tributary king of Ava, with the title of Tha-do-meng-tsau. The emperor delighted to continue Hantháwati as the capital of his empire, but determined to remain at Ava until the northern Shans were subdued.

It is much to be regretted that the Portuguese historian gives no account of this expedition, though it is almost certain that Portuguese are alluded to in the Burmese history, which speaks of four hundred Western



foreigners dressed in uniforms and armed with muskets, whose position was in front, flanks and rear of the emperor's elephant. In the following passage, however, the Portuguese historian no doubt alludes generally to the conquests of Bureng Náung, including the campaign of Ava. The "kingdom" of Pegu, before not very considerable, was raised to be one of the greatest "empires in Asia, by the king of Uva and Brama, assisted by 1,000 Portuguese under the command of Antony Ferreyra de Braganca, who served "him as his natural prince."

Columns were despatched into the country north of Ava, and the emperor himself proceeded to Myé-du on the Mú River. But the rainy season being at hand, and the troops worn out with fatigue, it was deemed expedient not to advance further at this time. A garrison was placed there, and the emperor himself returned to Ava, and thence to Pegu, where he arrived in June, 1555. The new king of Ava remained in his capital.

The emperor had before determined to build a fortified post at or near the ground where he had defeated Thaminhtau, and it was completed in this year. This is referred to by the Portuguese historian in the following words: "The king, not thoroughly satisfied with the people of Pegu, built, not far from it, another great and strong city." The emperor was careful to observe what was required of him as a good Buddhist. Additional gold was placed upon his father's pagoda at Táungu, offerings were sent to the holy tooth relic in Ceylon, communication having been opened with Dhammápála, the king of that island. A scandalous custom which had hitherto prevailed, of annual sacrifices of animals to the Náts of the Mountain Pup-pa, which had existed from the time of the kings of Pugán, was suppressed as contrary to religion. In the Burmese history, it is stated that many thousands of people used to assemble annually to sacrifice bullocks, buffaloes, pigs, and other animals on this occasion.\*

About this time the Tsaubwá of Unbáung having died, a dispute occurred among the relations as to the succession. The member of the family who succeeded was then attacked by the Tsaubwá of Moné, and he appealed to the emperor for assistance. The emperor deemed this an excellent opportunity for subduing the whole of the Shan country, and determined first to proceed against those in the north. A large army under the king of Táungu was assembled on that frontier to watch the southern Shans; while the emperor himself proceeded with his whole court to Ava, where a large army was also assembled. He arrived there early in 1557, and soon after proceeded up the Eráwati to Tsampanago, where his army was assembled. He then marched to Momeit, the Tsaubwá of which state had joined the enemy, while the king of Ava and other commanders proceeded against

\* Similar customs still exist in some remote parts of the country, though utterly contrary to Buddhism.



Unbáung. The whole of the country east of the Eráwati was subdued and annexed to the kingdom of Ava. As many heretical customs existed among the Shans, the observance of these was prohibited. On the death of a Tsaubwá, it had been the practice at his funeral to sacrifice his riding elephant, his horse, and his favourite slaves, and bury them in one grave with him. This was in future strictly prohibited. Pagodas for worship were erected; kyoungs were built, and orthodox monks placed in them, in order that religious duties might be exemplified and observed. Weights and measures were introduced in accordance with those existing in Hantháwati, and officers of justice appointed. Thus did the emperor provide for the temporal and spiritual welfare of the people. The emperor then determined to march against Modyin and Mogáung, which had formerly been subject to China.\* For this purpose, he crossed to the west bank of the Eráwati, and after an arduous march north subdued both those states. The Mogáung Tsaubwá swore fealty, and the Monyin Tsaubwá was taken as a hostage, his son-in-law being appointed chief. The same reforms were introduced into these states, which had been enforced in Unbáung and Momeit. The emperor had now subdued the country as far north as the Patkoi range of hills, which separates Burma from Ásám. He returned to Ava, and from thence proceeded to Pegu, which he reached in August, 1557.

But already another disturbance had arisen among the restless Shan chiefs. The Moné Tsaubwá had attacked the chief of Thí-bá. The emperor determined to punish both. In November, he marched to Táungu and across the mountains towards Moné. Many Tsaubwás had united their forces, but were defeated. The emperor pardoned the Moné chief on account of his youth; but in this and the adjoining states the reformed worship was introduced. These states received the name of Kambaudza, or this ancient name was now revived.

The emperor now held a council as to future proceedings. It was agreed that, as all the northern Shan states west of the Than-lyin river, except Thinní, had been subdued, nothing should at present be attempted in that direction. Thinní was still subject to China, and should not be interfered with. But it was determined to march against the Ywun Shans of Zimmé, after which it would be easy to occupy the country of the Gun or Gyun, Kyáing-run and Kyáing-tun, with other neighbouring states bearing collectively the classic names of Mahánágora and Khemáwára. The army was at once put in motion from Moné, and made twenty-four marches to

\* The northern Shan states in the valley of the Eráwati had, no doubt, been tributary to China. In the sixteenth century, the Ming dynasty had become weak, and the Manchoos had begun to assail the empire. It was these circumstances, probably, which determined Bureng Náung to attack these out-lying districts of the Chinese empire.



the Hta-tseng-tsheik on the Than-lwin, where that river was crossed. From thence twenty-one marches brought the invader to Zimmé. The king of that country had determined to defend himself in his capital, which was well provided with jinjáls. The emperor, however, had so large a force with superior artillery, that he surrounded the city and compelled a surrender. The king swore fealty, the emperor asking him if even the great ruler of China could help him. He agreed to pay an annual tribute of elephants, horses, silk, and other natural products of his country. Many artificers with their families were carried away to Hantháwati. No religious reforms were considered necessary. An army of occupation, numbering fifty thousand men, was left in Zimmé, and was placed on the frontiers of Siam and Leng-dzeng. The emperor then set out on his return to Ava. Being suspicious of the conduct of the Tsaubwás of Mong, Ngyáun-ywé, and other states, they and their families were detained as prisoners. The Tsaubwá of Thinní appeared with presents, but was not required to make his submission. The emperor arrived at Ava, in August, 1558. There he remained settling the country and repairing the religious buildings. All the Tsaubwás in the hills east of Bamau appeared and did homage. While thus engaged, news was brought that the king of Leng-dzeng\* was assembling a force, to attack the Burmese army in Zimmé. The king of Ava was at once sent with reinforcements, and he forced the king of Leng-dzeng to retreat. Some cities nearer to the Me-kong River were now occupied, and the king of Ava was then recalled. The emperor returned to Pegu in May, 1559.

He had before commenced the foundation of a pagoda, and the work was now pushed on. Numbers of supposed holy relics were placed in the relic chamber, with golden images of the family of Budha and his disciples, and of the royal family. The religious zeal of the emperor did not stop here. He was shocked at the number of animals put to death by the Muham-madans at the capital and other cities. Those people seemed actually to rejoice in taking the life of a goat or a fowl. The emperor desired to put an end to such sinful deeds. He built a magnificent Tatsháung, or place of assembly, and ordered the foreign people to attend. The true religion was then preached by the royal teacher, and numbers of the foreigners embraced the doctrine of the three treasures.†

\* Leng-dzeng is the Burmese name for the ancient Laos kingdom, east of the Mekong, or river of Cambodia, of which either Muang Luang Phaban, or Vien Chan, called also Lantchiang, was the capital. It is now subject to Siam. See Captain McLeod's Journal, p. 39, and Travels by Louis de Carné, p. 125.

† There are in Pegu a number of families who are Buddhists and in no way distinguishable from the people of the country, but who state that they are of foreign origin. They bury their dead and erect tombs over them; and they abstain from eating pork. In other respects, I am not aware that they have any peculiar customs. It is probable they are descendants of those converted by Bureng Náung, whose



The empire enjoyed rest for nearly three years. The chief of Kathe (Manipur) indeed made an encroachment on the territory of the Kale Tsaubwá, but this was soon settled. About the middle of the year 924 (A. D. 1562), a more serious attack occurred. The Tsaubwá of Mo-mit reported that some of his frontier villages had been attacked by the Tsaubwás from Ho-tha, Tsánda, and other states eastward of Bamáu. The emperor called a council, and observed he had no doubt but that these Tsaubwás depended on the assistance of the emperor of China, but, as before the destruction of Pugán, all that country was a part of the territory of that kingdom, he should punish this aggression. He sent an army under the three tributary kings of Ava, Prome, and Táungu, and his son, the crown-prince. The Tsaubwás then all appeared at Bamáu and swore fealty to the emperor. The religious reforms were introduced; pagodas and kyoungs were built, and orthodox phúngyís sent, in order that the four monthly worship days and other religious duties might be carefully observed. Times of payment for the royal revenue were fixed, and once in three years the Tsaubwás themselves were to come to the royal feet. Later in the same year, it was discovered that the Tsaubwá of Tanenthari had been sending presents to the king of Siam, and a small force was sent to supersede the Tsaubwá. But the commander was wounded and the expedition was a failure.

The emperor still had his designs against both Siam and Leng-dzeng, but was willing to forego them if the king of Siam would be reasonable. In open court he observed that in the time of the younger brother, (so he now designated Tabeng-Shwé-htí), Siam was a tributary country; that he neither wished for war, nor did he wish to worry his officers and the army; but the king of Siam had four white elephants and ought to present one. This appeared to his ministers and courtiers only reasonable. Messengers were, therefore, sent and the king of Siam was reminded that, in ancient times, his ancestor had presented a white elephant to Wareru, the king of Pegu, to whose rights the emperor had succeeded. The reply of the king of Siam, veiled in ambiguous terms, was interpreted as a refusal, and the emperor determined to march on the capital of his enemy. According to the Burmese history, the army consisted of four great corps, each under one of the three northern tributary kings and the crown-prince. Each corps consisted of 140,000 men, 400 fighting elephants, and 5,000 horses. The emperor's own guards under his immediate command consisted of 40,000 men, 400 fighting elephants, and 4,000 horses.\* The army was composed measures for attaining the object in view were probably not so mild as is represented in the history.

\* The Portuguese historian gives no details of the march of the invading army, and, it is probable, did not clearly distinguish the two sieges of the capital of Siam by



of men from all parts of the empire, Pegu, Burma, and the most distant Shan states. The plan of the campaign was for the several corps to march on Zimmé, those starting from Pegu getting as far to the north as possible, and none proceeding from Muttama by the route eastward, which was the route followed by Tabeng Shwé hti in 1548. From Zimmé it was intended that the river should be used to convey stores for the army down to Yodayá, the capital of Siam.

The main army left Hantháwati in November, 1563, and marching up the valley of the Páung-láung River as far as Táungu, passed the eastern mountain range at various points. The several corps were assembled at Zimmé or the neighbourhood, but the king of that country had refused to join the expedition and absented himself. All the places of strength in the territory of Zimmé had to be besieged, though some surrendered on being summoned. The invader thus occupied Tháuka-té, Pithaláuk, and other cities, and Au-ga-dhammá Rádzá, a son-in-law of the king of Siam, was taken prisoner. Negotiations were now opened with the king of Siam, but he refused to come to terms. The invader gradually approached the capital Yodayá, and invested it on all sides. But it was necessary first to get possession of three ships mounted by Portuguese, which were moored in the river for the defence of the city, and were supported by batteries on shore. With great difficulty and loss these batteries were stormed, and the ships surrendered. The foreigners, it is said, were taken into the emperor's service. The king of Siam, disheartened at the loss sustained, now consented to appear before the conqueror, and though he was not required to do homage as a subject, he was dethroned, and his kingdom reduced to a tributary state. The king and his queens were carried off as prisoners and hostages, together with his younger son, styled Brá-rá-ma-thwun. The elder son, styled Brá-ma-hin, was made tributary king of Siam; the king's son-in-law and other members of the royal family were appointed governors at Pithaláuk, Tháuk-katé and other cities. These arrangements were made in March, 1564, and the emperor, after making all arrangements at Yodayá, set out with his prisoners for Pegu, where he arrived during the following June. He brought away three white elephants and numerous artificers.

The Portuguese historian, in the 3rd volume of his work, records these events in the following words, in which some errors will be observed: "For the conquest of Siam he led a greater force, possessed himself of the kingdom, and took the king and his two sons, called by reason of their

Bureng Náung, as well as that during the reign of Tabeng Shwé hti, when he was general. The following passage in the third volume appears to refer to the invasion now related: "The war began again between Chaumigrem, king of Pegu, and him of Siam. The army of Pegu consisted of 100,000 men, among whom were many Portuguese, and 17,000 elephants. All this army came to ruin."



"different colour, one the black, the other the white. He was content to leave that king in possession of the crown as his vassal, having himself been till then his subject,\* carrying away his two sons as hostages. Branginoco returning victorious to Pegu, entered the city in triumph, many waggons going before loaded with idols and inestimable booty. He came at last in a chariot with the conquered queens, loaded with jewels, at his feet, and drawn by the captive princes and lords. Before him marched two thousand elephants richly adorned, and after him his victorious troops."

The emperor, notwithstanding this victory, was dissatisfied that nothing had been done to punish the king of Zimmé for his defection. He had retreated eastward, and was sheltered by the king of Leng-dzeng. Another large army was collected, and among the imperial guard and artillery one thousand Muhammadans and four hundred Portuguese are mentioned in the Burmese history. The emperor himself left the capital in November 1564, and proceeded to Labong, near Zimmé. A column under Binya Dála, an officer high in repute, took a southern route by Yaháing. All the Tsaubwás of the Yun tribe were anxious to support the independence of the king of Zimmé, but he himself came to the emperor and voluntarily submitted, saying that he did not wish to reign longer. He with his queen and their attendants then followed the emperor's camp. Troops were sent into the country east of Zimmé, to subdue the several petty chiefs.

While the emperor was thus engaged, a rebellion broke out in Pegu, headed by a Shan captive named Binya Kyan, with numerous Shan prisoners, and in which thousands of Taláings joined. They marched towards the capital, and the officers in command there were so alarmed, that they were on the point of sending off the empress and the whole of the royal family to Táungu for safety. They, however, took the advice of the deposed king of Ava, Narapati Tsithu, who pointed out that most of the rebel force were mere unarmed rabble, and might be easily checked. The ex-king was intrusted with a force, and went out and defeated the rebels close to the city. The leader was killed, and the rest fled into the thick woods of the delta. As soon as the emperor heard of this outbreak, he hastened back from Zimmé with a small force, and reached the vicinity of the city in June, 1565. Seeing that all the magnificent kyáungs and other buildings outside the city walls, which he had erected at vast expense, had been burnt by the rebels, he was so enraged, that without entering the city, he proceeded on to Dala to hunt them down. The king of Prome who had accompanied the emperor from Zimmé, was employed on this service; the rebels were utterly defeated, and several thousands of them taken prisoners. The whole of these the

\* This apparently refers to the erroneous idea before mentioned, that Táungu had been tributary to Siam.



emperor intended should be enclosed in a vast temporary building of inflammable materials, and burnt alive as rebels according to Burmese law. The Burmese and the Taláing histories, however, both state that on the intercession of the Buddhist monks, Burmese, Taláing, and Shan, he pardoned all except the leaders, and those who had accepted titles from the rebel chiefs.

The emperor's eldest son, the crown-prince, had been left in command in the Yun country, and found great difficulty in subduing the chiefs, east and north-east of Zimmé. At length, they were driven to shut themselves up in Maing-zán, in which also was the king of Leng-dzeng and his family. The town was taken, and all were captured except the king of Leng-dzeng, who escaped in the confusion. The crown-prince leaving his sick and wounded in the town, followed up the fugitives, but the Burmese army suffered from want of food and long marches, and after much loss was forced to return to Maing-zán. The crown-prince then sent to Pegu all who were able to travel, with a report to the emperor of the difficulties encountered. Orders were at once issued for the return of the army, and the crown-prince reached Hantháwati in October, 1565. The queen of Leng-dzeng, and the whole of the prisoners of high rank, were brought and placed in the palace.

The emperor now occupied himself in building new city walls and other public works. The outer wall or rampart was a square of seven thousand yards on each face. There were five gates on each face, each gate being constructed by a tributary king and called after him. A new palace was likewise built, to which the tributary kings contributed materials. The whole was finished in March, 1567, when a grand festival was held.\*

The last expedition of the emperor against the king of Zimmé appears to be referred to in the second volume of the Portuguese history in the following words: "Then he marched with an army of 1,600,000 men and overran many neighbouring countries. But another rebellion breaking out at Pegu, the queen was forced to fly to the castle, chiefly relying upon thirty-nine Portuguese, who defended her till the king came and vanquished the rebels. Then the king sent an officer to bring those men who had defended the queen to his presence. He brought him some Moors of note. But the king knowing the Portuguesees were the men, said in anger, 'I sent you for men, and you bring me cowards; go, bring me men.'

\* Of this palace the Portuguese historian writes: "He built a palace as big as an ordinary city. The least part of its beauty was rich painting and gilding, for the roofs of some apartments were covered with plates of solid gold. Some rooms were set with statues of kings and queens of massive gold, set with rich stones, as big as the life. He was carried on a litter of gold upon many men's shoulders: the reverence paid him was more like a God than a prince." He called this palace, which was a vast collection of grand pavilions, Kambauza détha after one of the Buddhist countries of India.



"The Portuguese being brought, he bid them ask whatever reward they would, and they with the surprise doubting, the king loaded them with riches, praises, and honours."

In the Burmese and Taláing histories, the Portuguese are not mentioned as contributing to the suppression of the rebellion in 1565. Although it is stated that the officers in command, during the emperor's absence, were utterly bewildered, the whole credit is given to the deposed king of Ava, and to an officer commanding a body of light troops detached by the emperor from Zimmé, and who advanced by forced marches on the capital. But it is evident that in the native histories, the services rendered by the Portuguese are systematically suppressed, and there appears no reason to doubt the truth of the anecdote above related.

The king of Leng-dzeng continued to make demonstrations against the towns in the Zimmé territory held by the emperor's officers. But his son-in-law came in and made his submission. Everything now looked promising. The capital was crowded with people, and was a scene of constant bustle and alacrity. But suddenly rice became scarce, which caused much suffering. The deposed king of Siam became a Rahán, and was permitted to go to his own country to worship. His son Bra-rá-ma-thwun had died, and his widow was allowed to return to Siam with her children. The tributary king of Siam now begun to take measures for once more being independent, and in this was supported by his father. But his brother-in-law, who was governor of Pithaláuk, would not join them, and leaving his government, came to Hantháwati with his family, where he arrived in June, 1568. The emperor saw that another invasion of Siam would be necessary, and began to make preparations. But as the campaign could not commence in the rainy season, he contented himself with strengthening the garrison of Pithaláuk and the king of Siam's son-in-law was sent back there. The reigning king of Siam determined to attack Pithaláuk at once, and the king of Leng-dzeng appeared with an army to help him. But the garrison resisted all their efforts by land and water. Their force became so reduced, that they at length drew off to a distance.

The emperor had collected even a larger army than before to march against Siam. It consisted of 5,300 fighting elephants, 53,000 horses, and 546,000 men. In the emperor's bodyguard were 4,000 Portuguese, and 4,000 Muhammadans, all armed with muskets, and cannon in great numbers. The army marched in October, 1568, and in forty-seven marches had reached sufficiently near Pithaláuk to relieve that place. The old king of Siam who had been deposed, appears to have resumed his position, having thrown off his monk's gown. He had made great preparations for the defence of the city, and his son Brámahin who had resigned power to his father, nobly seconded him. On the upper Menam and its tributaries, the emperor



collected numerous boats to convey stores of all kinds for the army on its march down to the capital. The commander under the emperor was Binya Dala, through whom all orders were issued. A portion of the army remained in the upper Menam to plant rice when the rain began to fall, in case there should be a scarcity lower down. The army invested the capital without any resistance. The emperor had determined to reduce it by famine. But after four months, that is, in May 1569, little or no effect had been produced. At this time the old king of Siam died, and his son Brámahin made some overtures for surrender, but these were not accepted. The losses in the Burmese army had been very severe, and the emperor becoming anxious, put two of his superior officers to death for neglect of duty. At this time, the king of Leng-dzeng approached with an army to relieve the capital. The emperor leaving Binya Dala in command, himself proceeded with the crown-prince and other officers, and a battle was fought in which the Laos king was defeated. The king now returned to renew the siege. Affairs had become very serious and the emperor had recourse to a stratagem. One of his Siamese supporters, a noble of high rank, pretending to desert, entered the city with irons on his legs. He was received with joy by Brámahin, and appointed to a high command. In pursuance of his treacherous design, he maintained a correspondence with the emperor, and opening one of the city gates allowed the enemy to enter. The city was taken in August, 1569, after a siege of seven months. It was given up to plunder. The unfortunate king Bráhmahin was made prisoner.\* The emperor remained in the city of Yodaya for two months, and appointed Tháung-kyi, a member of the Zimmé royal family, tributary king of Siam. In a council of all the principal officers, it was decided, that it was now essential that the king of Leng-dzeng should be followed up. Sending back all surviving disabled men to Pegu, and an immense quantity of plunder, the emperor himself proceeded up the Menam, and fixed his head quarters at Pithaláuk. From thence the several divisions of the army marched eastward. After a long and tedious march, the emperor encamped on the right bank of the Mekong, opposite Máing-zán. Nothing had been heard of the corps commanded by the crown-prince and other generals. Orders were issued to fell trees, to prepare boats and rafts, to cross the river. A bridge of boats was at last made by which the army passed, and the enemy deserted Máing-zán. The other divisions, after great sufferings, had crossed the river some distance to the north, and now marched down to join the emperor. Máing-zán being made a depôt for stores and the sick, the king of

\* Nothing more is said of this king in the Burmese history. Both that and the Taláing history dwell on the death of the old king and of the generosity of the conqueror in giving him a grand funeral. His son, it would appear, committed suicide, as we learn from an old Venetian traveller quoted hereafter.



Táungu was left in command, while the rest of the army under the emperor marched in pursuit of the enemy. The Leng-dzeng king was too wary to come to an engagement, and the invaders were wearied with long marches and want of food. At length, they returned to Máing-zán, and the whole army re-crossing the Mekong reached Pithaláuk, in June 1570.\* From thence the emperor reached Hantháwati in the following month. Of the original army which marched to subdue Siam, very few survived.

The emperor's first care after his arrival was to make rich offerings to the pagodas; to cast fresh images in precious metals, and to complete a new Hlwut dau, or royal council chamber, within the palace. He had turned his attention to foreign trade by sea, and built a ship of his own, which he sent loaded with merchandize to Melaput (?) and other ports of Ceylon and Southern India. In 1571, a rebellion of the northern Shans of Mo-gáung and Monhyin occurred. A force under the crown-prince and the king of Ava was sent against them; but the Tsaubwás could not be found, and the army was recalled. During this interval, the king of Leng-dzeng for some unexplained reason made an attack on a city belonging to Cambodia,† and was killed. One of his nobles usurped the throne. But the emperor, who had the deceased king's brother, named Ubarit, at his court, determined to support his claim, as he consented to become a tributary. An army was sent under the great general Binya Dala, to place him on the throne, but the expedition was unsuccessful. He was either put to death or sent into exile to a sickly place where he died. Binya Dala appears to have been a native of Pegu, but probably of Shan descent.

The last expedition of Bureng Náung against Siam, and afterwards into Laos, is related by the Portuguese historian in such a manner, that he appears to assert that the city of Yodayá was not taken. The fact of its surrender, however, admits of no doubt, though from the great loss sustained by the besiegers, it probably would not have fallen, had it not been for the treachery which has been related. De Sousa, after relating the capture of the Siamese princes in the first siege, but apparently not knowing that their father, the senior or first king of Siam was carried off as a hostage, proceeds thus: "After some time, the two brothers asked leave of the king to visit their father, which he granted, and afterwards sending to demand the usual

\* This is probably a mistake for June, 1569, as will be seen farther on.

† Cambodia is called in the Taláing history 'Khameng,' probably a corruption of the native name Khmer. Cambodia seems to be the Portuguese form of Kamphoutche, which itself is probably derived from Kambauza, the name of an ancient Buddhist country of India. All the Indo-Chinese nations have been in the habit of calling their cities after famous Indian cities. A portion of the Shan country was also called Kambauza, and the country east of Bamán was named Kosambi, which in popular language has been changed to Ko Shán pyí. Yodayá, the capital of Siam, is the Indo-Chinese form of the famous city of Ráma.



“tribute, the black Prince refused to pay it. The king in a rage sends his  
 “great favourite Banna, with a powerful army against him. Banna ravaged  
 “the country of Siam, and besieges the Prince in Hudixa, who defended it  
 “so bravely, that Banna being forced to draw off, he fell upon and totally  
 “defeated him. The king sends his brother-in-law with a greater power, and  
 “he receives a greater overthrow; 200,000 of his men were cut in pieces  
 “with a great number of elephants and horses, many more of both taken.  
 “The black Prince remained victorious, his men were enriched and all en-  
 “couraged to follow their good fortune. The king of Pegu raises another  
 “army of 1,700,000 men, 1500 elephants, 80,000 horses, and all necessities  
 “proportionable. The command of it he gave to Mapa Raja\* his son, with  
 “the title of king of Siam, not doubting of the victory. At the news of this  
 “power, all Siam trembled except the valiant black, now king, who met his  
 “enemy and gave him battle. The two kings encountering on their ele-  
 “phants fought, and he of Pegu was cast dead off his elephant, at which  
 “sight his men fled and the Siamites pursued them a month, destroying the  
 “greatest part of that vast army.”

This account seems to mix up the three or rather four separate expedi-  
 tions which we have given from the native histories. The first against  
 Yodayá, where, though Bureng Náung was victorious, it was with immense  
 loss; the two expeditions into Leng-dzeng, the last being under Binya Dala  
 and both unsuccessful; and that, to put down the insurrection of the north-  
 ern Sháns, under the crown-prince, which was also a failure.

Some light is thrown upon this period of the history by the narrative of  
 Master Cæsar Fredericke, the Venetian, who, as translated in Purchas, states  
 as follows:† “Sion, or Siam, was a great city, but in the year 1567, it was  
 “taken by the king of Pegu. The number of his army was a million four  
 “hundred thousand men of warre. I was in Pegu six months after his  
 “departure, and saw when that his officers that were in Pegu sent five  
 “hundred thousand men of warre to furnish the places of them that were  
 “slaine and lost in that assault. Yet for all this, if there had not been  
 “treason against the citie, it had not been lost; for on a night there was  
 “one of the gates set open, through the which with great trouble the king  
 “gate into the city, and became governor of Sion; and when the emperor  
 “saw that he was betrayed, and that his enemy was in the city, he poisoned  
 “himself; and his wives and children, friends and noblemen that were not  
 “slain in the first affront of the entrance into the city, were all carried

\* This means Upa Rádzá—the Yuvaraja of the ancient Hindus,—which was the  
 title Bureng Náung conferred on his eldest son. It is equivalent to Ein-She Meng of  
 the present day.

† Cæsar Fredericke, seems to have been in different parts of Pegu during 1567,  
 1568, and 1569.



“captives into Pegu, where I was at the coming home of the king with his triumphs and victory ; which coming home and returning from the wars, was a goodly sight to behold, to see the elephants come home in a square, laden with gold, silver, jewels, and with noblemen and women that were taken prisoners in that city.”

It will be remarked that there is a difference of one year in the date given in the Burmese history, and that by Cæsar Fredericke as to this invasion of Siam. The difference is extended to the date of “the coming home of the king,” which the Venetian traveller apparently places in 1569 ; and the Burmese history in 1570, after the conclusion of the expedition into Leng-dzeng.

Cæsar Fredericke visited Martaban where, as he states, “we found ninety Portugals of merchants and other base men, which had fallen at difference with the Rector or governor of the citie. At that time, the city was empty of men, by reason they were gone all to the warres, and in business of the king.”

He then proceeded to Pegu, “which are two cities, the old and new. In the old city are the merchant strangers, and merchants of the country. The merchants have all one house, or Magason, which they call ‘Godon,’ which is made of bricke, and there they put all their goods of any value. In the new city is the palace of the king, and his abiding place with all his Barons and Nobles, and in the time that I was there, they finished the building of the new city. It is a great city, very plain and flat, and four square, walled round about, and with ditches that compass the walls about with water, in which ditches are many crocodiles. It hath no draw-bridges, yet it hath twenty gates, five for every square, on the walls. There are many places made for centinels to watch, made of wood, and covered or gilt with gold. The streets thereof are the fairest that I have seen ; they are as straight as a line from one gate to another, and standing at the one gate you may discover the other ; and they are as broad as that ten or twelve men may ride abreast in them. And those streets that be thwart, are fair and large. The houses be made of wood and covered with a kind of tiles in form of cups. The king’s palace is in the middle of the city, made in form of a walled castle, with ditches full of water round about it. The lodgings within are made of wood, all over gilded, with five pinnacles, and very costly work covered with plates of gold.” The whole of this description of the city of Hantháwati, and of the palace, would answer for the present capital Mandalé, except that the streets of the latter are broader than is here indicated, and that the palace wall has no ditch. The traveller gives an intelligent description of the army of the king of Pegu ; of the war elephants ; the “good ordnance made of very good metal ;” he hath “eighty thousand harquebusses, and the



number of them increaseth daily ;" the rest of the soldiers are armed with bows and arrows, pikes and swords, " but their armour and weapons are very naught and weak ;" this was compared with the European armour and heavy pikes of the period. The account given by this observant traveller shows that the native histories do not exaggerate his power and magnificence. Indeed, they state the number of his soldiers much below that given both by the Portuguese historian and the Venetian. The latter concludes this part of his narrative by stating—"The king of Pegu hath not any army or power by sea, but in the land, for people, dominions, gold, and silver, he far exceeds the power of the great Turk in treasure and strength."

The traveller also describes how "the king sitteth every day in person to hear the suits of his subjects," he sitting "up aloft in a great hall on a tribunal seat, with his Barons round about ;" while on the ground "forty paces distant" are the petitioners "with their supplications in their hands, which are made of long leaves of a tree," and a present or gift according to the weightiness of their matter." If the order be favourable, "he commandeth to take the presents out of their hands ; but if he think their demand be not just or according to right, he commandeth them away, without taking of their gifts or presents." So the pitiless Bureng Náung had a conscience, when sitting as a king to hear his people's complaints.

The Taláing history records that the emperor desired another expedition to Leng-dzeng, to retrieve the last disaster there, and "destroy the head and not the mere tail of the cobra." The levy of an army was commenced, but the people murmured loudly, and many were heard to say that it was better to die at home than to perish of hunger and fatigue in a far country. The Shans were equally discontented, and some of the Tsaubwás, it is said, were supported in their opposition by the emperor's half brother and son-in-law, the king of Ava. The project was deferred for the present, but in 1574, the emperor determined to place Ubarít on the throne of Leng-dzeng. He marched in October of that year, and arriving at Máing-zán, laid in stores of grain. He did not march into the country, but issued a proclamation that he had come to place the rightful heir upon the throne. He then bestowed the regalia upon Ubarít with much good advice, and departed, leaving his tributary at Máing-zán with some troops. He reached Hanthá-wati in May, 1575. But a new expedition against Mogáung and Monyin had now become necessary ; for those restive states had refused to join the last expedition to Leng-dzeng, and were in open revolt. A force directed by the emperor himself proceeded north from Ava. The Tsaubwá of Monyin was killed, but the other fled, and though the troops followed him into regions where there was only snow for water, they could not capture him. In Leng-dzeng, however, the course of events was more fortunate. The usurper was delivered up by his own officers, together with his son, and the



Burmese commanders, apparently glad to leave, returned at once with their prisoners to Zimmé. There a portion of the force remained, and the remainder came on to Hantháwati. These important prisoners were forwarded to the emperor who was still at Mogáung, as the exhibition of them in that quarter would, it was considered, have a good effect. The Tsaubwá of Mogáung, however, could not be caught, and the emperor, recalling his son and other officers from the pursuit, returned to Pegu, and reached his capital in July, 1576.

There a great triumph awaited him. The emperor had long been in communication with ports on the coast of India and with a Buddhist king in Ceylon. He was the most powerful protector of the three treasures in Indo-China, and his support was naturally sought for by the now petty rulers in the holy island of Buddhism. Two years before, a Singalese princess had arrived and had been received with high honour, though the Portuguese historian asserts that the lady sent was only a daughter of the chamberlain of the king of Colombo. Now, at the very time the emperor returned to his capital, news was brought of the arrival of the holy tooth relic of Gautama Budha in a ship at Bassein. As the season was unfavourable for the ship to come to Pegu, a deputation of all the nobles of the highest rank was sent, and they bore a golden vase, adorned with the richest jewels taken from the conquered kings, in which the precious relic was to be deposited. A letter was also received from Dhammápála, the king of Ceylon, announcing that he was the only orthodox king of the four who ruled in the island. Arrangements were made for building a suitable pagoda for the reception of the relic; and with reference to Dhammápála's complaints of his being rather overborne by the three heretical kings, an envoy with a small force selected from all the various races in the emperor's army, was despatched by sea to Ceylon. This, it is intimated, had the effect of causing the Buddhist king to be much respected, and the envoy then returned.

The Portuguese historian places the arrival of the pseudo-princess and the pseudo-relic at the same time, but otherwise his statement appears substantially correct. It is as follows: "Among the treasure lately taken from the king of Jafanatapan, was an idol adored throughout all the coast of Asia, and so highly esteemed by all those princes, particularly the king of Pegu, that he every year sent ambassadors with rich presents to get a print of it." The king of Pegu hearing that the Portuguese Viceroy had this idol—the tooth relic—, offered 300,000 ducats for it. This was refused, and the tooth was beaten to dust in a mortar and burnt at Goa, by order of the Viceroy Don Constantin. "All men," adds de Sousa, "at that time seemed to applaud the act; but not long after, two teeth being set up instead of that one, as shall be related in the government of Don Antony de Noronha, they as much condemned and reviled at it." As to the





Princess, the Portuguese historian relates—"Brama, king of Pegu, being told "by astrologers that he was to marry a daughter of the king of Colombo, sent "to demand her, and he had never a one; but his chamberlain had one the "king esteemed as his own." He agreed also to give the tooth in dowry with the bride. They were received "with the greatest pomp that ever has "yet been heard of. Many gallies were fitted out, but that which was for "the queen, was covered with plates of gold, and rowed by beautiful young "women, richly clad, and brought up to this exercise. The king of Candea "understanding the deceit of this marriage, and envying that great fortune, "acquainted Brama\* therewith, offering him a true daughter and tooth, "and affirming both that of Columbo, and the other of Don Constantin "were counterfeit, and the true one was in his hands." Nothing of this is to be found in the Burmese or in the Taláing history; the relic, though received with much pomp, disappears from history, and from the memories of the Buddhist nations, where, if believed in, it would have been enshrined for ever. It was deposited in the relic chamber of a Zedi built to receive it, and in which gold and jewels of such immense value were placed, that the Zedi was probably broken into, and the relic chamber plundered, in the time of the Portuguese adventurer, Philip de Brito, about twenty-five years later.

After the acquisition of this relic and, it is inferred, from its good influence, the Tsaubwá of Mogáung was surrendered by his chiefs to one of the emperor's sons, styled Thá-yá-wati Meng, who had been sent with a detachment into that country. The young chief was brought to Hanthá-wati, and the emperor reproached him with his ingratitude, after the kindness with which he had formerly been treated. His life was spared, but he was exhibited at one of the city gates in fetters for seven days, after which he was released. About one hundred of his followers who had supported him in his gallant resistance, were sold as slaves to Kulá merchants, and being put on boardship were sent beyond sea. The emperor had thus rid himself of his most troublesome enemy, but affairs in Leng-dzeng were not satisfactory. To strengthen his position in that quarter, he now appointed his son, the Thá-yá-wati Meng, who had shown great energy and ability, tributary king of Zimmé. He left for his kingdom in March, 1578, and the emperor enjoined him to remember that he owed allegiance to his elder brother the Upa Rádzá. He received the title of Náurahtá Dzáu. But the emperor, from the anxious care he took to bind the two brothers together, seems to have foreseen the danger of future struggles among the tributary

\* Bramá was the usual Taláing pronunciation of the national name for what we now style Burma, or as now written by the Burmese, Mrammá and Bamá, but originally Brahmá. Bureng Náung, as already explained, claimed to represent the ancient Burma race, and is thus correctly designated by the Portuguese historian.





kings of the empire he had founded. It was again necessary to send an army into Leng-dzeng. A pretender had appeared claiming to be the dead king Bya-tsétsit, and Ubarít was unable to meet him in the field. The Upa Rádzá set out in October, 1579, and marched to Máingzán where Ubarít joined him. The expedition was successful, and the crown-prince returned to Pegu in the spring of 1580, bringing some prisoners of importance.

The emperor had now subdued all the enemies with whom he had fought for so many years. Even Leng-dzeng was to a considerable extent subject to his tributary king. Instead, however, of resting or granting his subjects relief, he turned his attention to Arakan. The king of that country, he observed, desired to be independent, contrary to his engagement, and it was necessary to coerce him. A large fleet of vessels and boats of all sizes were collected, in which an army of eighty thousand men was embarked, and the fleet proceeded to a point on the south coast of Arakan, where the men landed and marched to Thán-dwé (Sandoway) in November, 1580. The force was commanded by one of the emperor's sons, who received the title of Thirithu-dham-má Rádzá. He entrenched himself at Thándwé, and awaited further orders as to an advance on the capital of the kingdom. This expedition is noticed by the Portuguese historian, who states that a ship belonging to the king of Pegu was loading at Mazulapatan. The governor sent some ships to seize it, on what account is not stated. They did not encounter it there, but afterwards near the mouth of the river Negraes, and there sunk it. Near this, they met the Prince of Pegu with a fleet of 1,300 sail, designed for the conquest of the kingdom of Arakan. A fight took place, the Portuguese disabled and took some of the enemy, but were obliged to withdraw, on account of the great number opposed to them, and got into the port of Arakan. The Portuguese then considered themselves at war with the emperor of Pegu, which probably resulted from his interference with the petty kings of Ceylon. In the native histories no notice is taken of this attack on the Burmese fleet. The army sent by the emperor seems to have remained inactive at Than-dwé for nearly twelve months. In October 1581, reinforcements were sent, but these did not go by sea. The emperor's days, however, were numbered, and before the whole of the reinforcements reached their destination, he died very suddenly in November, aged sixty-six years, and after a reign of thirty years in Hanthá-wati. There is a studied obscurity in the native histories as to the lineage of Bureng Náung, but as he had in early life married a sister of king Tabeng Shwé hti, it is probable that he belonged to the royal family of Táungu.



## • No. 3.

*List of the Kings of Pegu of Shan race, who reigned after the re-establishment of the kingdom under Waré-ru, A. D. 1287.*

Names or titles of Kings.	Commencement of reign.			Length of reign in years.	Relationship of each succeeding king.	REMARKS.
	Year of religion.	A. D.	Burmese era.			
1 Wa-ré-ru, .....	...	1287	649	19	...	A Shan chief who established the dynasty, but had his capital at Muttama.
2 Khun-lán, or Tha-ná-ran-bya-keít, .....	...	...	668	4	Brother.	
3 Dzau-án, or Theng-mháing, .....	...	...	672	13	Nephew.	
4 Dzau-dzip, or Binga-ran-da, .....	...	...	685	7	Brother.	
5 Binya-é-lau, .....	...	...	692	18	Cousin.	Son of No. 2, Khun-lán.
6 Binya-ú, or Tsheng-phyú-sheng, .....	...	...	710	37	Cousin.	Son of No. 4, Dzau-dzip. This king restored
7 Binya-nwé or Ra-dzá-di-rít, .....	...	...	747	38	Son.	the ancient capital Pegu.
8 Binya Dham-má Ra-dzá, .....	...	...	785	3	Son.	
9 Binya Rán-kit, .....	...	...	788	20	Brother.	
10 Binya Wa-rú, .....	...	...	808	4	Nephew.	
11 Binya Keng, .....	...	...	812	3	Cousin.	
12 Mháu-dáu, .....	...	...	815	...	Cousin.	Reigned seven months.
13 Sheng-tsáu-bu, Binya-dáu (Queen), .....	...	...	815	7	...	Daughter of No. 7, Kádzá-di-rít.
14 Dham-má Dzé-di, .....	...	...	822	31	...	Not of royal race.
15 Binya Rán, ..	...	...	853	35	Son.	Son-in-law of No. 13, Shengtsáu-bu.
16 Ta-ká-rwut-bi, .....	...	1526	888	14	Son.	Conquered and deposed by Tabeng Shwé hti, king of Taungu, A. D. 1540.



*Notes on the age of the ruins chiefly situate at Banáras and Jaunpúr.—By the late MR. CHARLES HORNE, B. C. S.*

The following notes refer chiefly to the ruins at Bakharyá Kūṇḍ at Banáras, full accounts of which have appeared in the Journal of the Asiatic Society of Bengal for 1866, and those at Jaunpúr, viz., the three great mosques of Aṭálah-Lál Darwázah and the Jāmi' Masjid; although a large portion of them will apply to many other buildings in this part of India.

Up to the winter of 1870, I had always believed, and my belief had been strengthened by the opinions of others, but these buildings had in general been built upon Buddhist or ancient Hindú substructures, or had been altered and converted from such buildings for Muhammadan purposes. They had been so treated by the Rev. M. A. Sherring and myself, when describing them, and General Cunningham, Archæological Surveyor of India, appeared to be of the same opinion. Thus these substructures would date very early, even to 300 and 500 A. D., at least.

My attention to the subject of this alteration and conversion had been first aroused by Mr. Fergusson's admirable account of such conversion, and most of these buildings shew traces of such alteration. But happening to refer to Mr. Fergusson's History of Architecture, Vol. II, page 663, for a description of Indian Saracenic Architecture, the edition now used by me being of a later date than that I possessed before the meeting in 1857, I find that the writer, speaking of Bakharyá Kūṇḍ near Banáras, says, that "there is a singular group of tombs and other buildings by the Moslems which are singularly pleasing specimens of the Jaunpúr style."<sup>\*</sup>

In the upper part of the page, there is a description of the grand old Aṭálah Mosque (اٹالہ) at Jaunpúr, in which Mr. Fergusson says that he was "almost inclined to agree with Baron Hügel in considering this a Buddhist monastery." I have lived five or six years in the immediate vicinity of all these buildings, and have examined them most carefully and duly weighed all the evidences of antiquity I met with, and I entirely agree with Baron Hügel in holding that much of the substructure as well as the general plan is Buddhist or Ancient Hindú. If so, they are most interesting examples of their class and built examples of an ancient style which Mr. Fergusson holds not to exist in India at the present time. Hence the subject assumes great interest, and is worthy of careful and temperate discussion. Unfortunately, to be properly dealt with, it requires many plates.

In two manuscript copies of the Jaunpurnámah, or 'History of Jaunpúr,' which I have compared, and which was compiled some seventy years

\* In a footnote to the same page we find :—Journal of the Asiatic Society of Bengal, for 1865 (should be 1866). *There however, they are mistaken for Buddhist remains, which they are not.*"



since by Khairuddín Iláhábádí, a most learned Muslim of the city, from manuscripts and from local oral tradition, the Aṭálah Masjid is spoken as an existing idol temple when Fírúz Sháh founded the city. In this record we are told that Rájah Jay Chand overcame the giant Karabir, who resided at Jaunpúr, and destroyed an idol temple; but this temple would seem rather to have stood on, or below, the site of the Fort of Jaunpúr, and of it but few traces remain. These consist of carved stones built into the mosque, which was afterwards constructed chiefly thereof in the Fort area.

This view is supported by the fact that, in 1858-59, when mines were drawn under the fort for the purpose of destroying the fortification, carved stones and fragments of friezes were dug out, of the same patterns as those used by the Muslims in their erection of the propylus of the mosque of Aṭálah. This fort dates (as a fort) with the bridge, or perhaps a little earlier, *i. e.* the latter part of the 15th century. The temple of Aṭálah Deví, or Dewal Aṭálah, is spoken of throughout the history as having been a place of great sanctity, and it would seem that the Bráhmans on the overthrow of Buddhism had appropriated it, and making Sakhya Muni the ninth Incarnation of Vishnu, left his figures standing therein. The fact of there being such figures, many remains of which still exist, only proves that the monastery was built after the faith had become much degenerated. Fírúz Sháh granted the people a *sanad* whereby their temples were not touched, but no new temples were to be erected. Subsequently, we are told, that *naturally*, as the Muslims gained power, they converted it into a mosque, and it became the state place of prayer; but subsequently falling into disrepair, it was never restored.

This, remember, was written by Muhammadans who could have no possible object in misrepresentation, and who, if it were so, would certainly claim the mosque as an original erection.

When most carefully examined by me, I found no traces of statues of any other than Buddhist, *i. e.* Sákhyas, at the Aṭálah, although some others were found built into the other mosque. In the basement niches there would appear to have been cut in relief bells supported by chains or twisted rope. This is a well known form of ancient Hindú ornamentation, and the cloisters at the Quṭb near Dihlí, which Cunningham so clearly shews to have been constructed of Hindú temple pillars, are covered with them. Report for 1862-63, page xxxix.

This last named writer in one place speaks of the apparent conversion of these bells most ingeniously into seal and stands with a Muhammadan inscription upon them, and this would appear to have been done at the Aṭálah, notably in the vestry room, converted by them into a room for their women who entered by a private door and staircase, and they then appear to have cut upon the said seals their profession of faith.



Again, the brackets within the courtyard which supported the eaves of the upper cloister have originally been animals. Their forms have been defaced, but it cannot be concealed, and surely no Muslim ever put these up. Throughout the three mosques at Jaunpúr there are built into the restored or altered parts, such as the gateways, and domes, very many defaced Hindú figures, chiefly Buddhist, built face inwards into the masonry, all shewing most plainly whence the materials were obtained.

The Maháwanso tells us that the pulpit in Buddhistical Viháras always faced the East, and that the principal door faced the East also. Hence the direction of Makkah was already arranged for.

The great porch of the Jaunpúr mosques may be entirely of Muhammadan construction; but the principle of the arrangement of the doorway is very ancient Hindú, whereby the light enters from over the high door and falls at a certain hour on the figure of Sákhyá, which was always placed upon a 'singhásan,' or throne, facing due East.

The cloisters around appear to be much as they ever were, excepting that they have been constantly repaired, and pillars here and there replaced. I have never heard of such pillars being claimed by Musalmáns; and we find the same at the rock cave temple in Bihár, whilst the cruciform capitals are as ancient as any form of Indian architecture that I know of.

The centre gateways are manifestly inserted, and although ancient materials have been used, the work is Muslim. Here any unprejudiced person can see at a glance how the ancient work has been overlapped and built in. He has only to look at the columns and at the ground basement moulding running under the very steps. This basement moulding appeared to Mr. Sherring and myself to be part of the original building, and here I may remark that the Muhammadans, when preparing a mosque, never cared to disturb the good old foundations or the basement moulding. They built on whatever they found that suited their purpose, and hence we find mere ancient substructures.

In General Cunningham's Report for 1862-63, para. 261, p. 23, he says, speaking of remains at Kanauj—"On comparing, therefore, this cloistered Masjid (the Sita-ka-Rasui) with those of Jaunpúr, *which are acknowledged rearrangements* of Hindú materials, we see at once that.....are not Muhammadan. *Vide* also para. 264, which applies still closer to Jaunpúr.

As doubtless the masons employed by the Muslims were Hindús, any mason marks made by them during the rearrangements would prove nothing. They are not therefore quoted in this place. Some were published by me in the 'Builder,' of June 26th, 1869.

The cloister pillars also shew beneath the new work of the porch, which is scaling off and falling down.

The whole country in this neighbourhood was formerly covered with ancient temples, and we found in the foundation under the front gateway



of the Lál Darwázah a Hindú pillar carved over with chains and bells. The fact that Jaunpúr, under some other name, is not mentioned by the Chinese travellers is not surprising; for, as I said before, the whole country is covered with the remains of such buildings, and they had enough to see and describe without going out of their way.

Before leaving these interesting buildings, I would wish to remark a curious coincidence. The "Sita-ka-Rasui" at Kanauj is quoted by Mr. Fergusson from Cunningham's Report as having been *rearranged* from a Jain temple by the very Ibráhim Sháh of Jaunpúr in 1406, A. D., *i. e.* just the same time as that assigned by that gentleman (*viz.*, A. D. 1419) for the *erection* of the Jaunpúr mosque by Ibráhim Sháh. The inference is very clear. He says that they were commenced at this time, and finished by Husain, 1451-78.

In all this, I do not deny that the Muslims may have copied ancient patterns in carving, as is notably seen in old cloisters in the Fort at Rajghát, Banáras, the adaptation of which has never been disputed, and they certainly used carved stones found on or near the spot for their new work. Mr. Fergusson writes to me that our difference of opinion is not one of degree, it is absolute; "I deny in toto that these mosques are built on Buddhist sites, or that their details are Buddhist, or even copied from Buddhist buildings."

The closed cells under the courts are not wanting, and are visible in a marked degree under the Mosque of Aurungzeb in the centre of Banáras, where all may see them.

The very many ancient carved stones found within the precincts of the mosques prove that at the best they were sites of buildings of great antiquity.

I will now say a little relative to the ruins of Bakharyá Kund and the grounds upon which we (Mr. Sherring and I) assigned them the date we did, *viz.*, that of the Gupta dynasty, according to Mr. Fergusson, 300 to 400 B. C.

At Jaunpúr, I am not aware of any inscriptions having been found to fix the conversion of the mosques; but at Bakharyá Kund we were more fortunate, and the reader will find one of the time of Firúz Sháh, A. D. 1375, quoted by Mr. E. Thomas in his work on the Chronicles of the Pathan kings of Delhi, to shew how they *appropriated* and built upon temples which came to their hand. In fact, I may in passing remark, that I have only found one temple at Banáras which can claim date before the time of Mahmúd, the destroyer of temples. It is at Khundúa on the Pachkosi road, and is well worthy of the visit of any passing archæologist.

The Chinese traveller of the 7th century, Hwen Thsang, mentions many Buddhist monasteries at Banáras in his day, and states that there were thirty, to most of which were probably attached temples, and considering the massive structure of the day, I hold that some remains must exist even now. Hence Mr. Sherring and I examined well the line of country where they were





likely to be, and we reported our success in the pages of this Journal. Chief amongst these was the one at Bakharyá Kund, which Mr. Sherring brought to notice some years ago. Here we found a small mosque, the substructure of which we hold to be original ancient Hindú or Buddhist work. There were also many terraces, girt at their base with massive mouldings, breast works built up of large cut stones, low cloisters constructed of old square columns, and foundations built of huge brick and very many feet in thickness (10 to 30 ft.). Over the ground were scattered carved stones, broken statues, kulsis or top stones, 9 feet in diameter, with many other remains. Below these basement mouldings or blocks of stones, squared on three sides and rough internally, which had been laid bare by the weather, were many incised inscriptions in the Gupta character. A few of these have been collected on the accompanying plate, and these have principally, but not wholly, been copied from stones 'in situ.' This is one of the principal grounds of our opinion, which was not hastily formed. The inscriptions were kindly translated for me by my learned friend Babu Rájendralála Mitra.

The small mosque is a very curious one of conversion, if it be one. The ground plan is not that of a mosque at all, but of an Indian temple. It is a square with a square projected on each face. On that facing the East, however, the projection has not been carried out, but instead an enormous stone has been let in as a base for the singhásan on which was to stand the figure of Sákhyá. From the base arise pillars, severe in character, square as all the ancient Hindú pillars were in this part of the country, whilst above the Muslims have put on a dome. It has been figured in our account in the J. A. S. for 1866, and even struck J. Prinsep who lithographed it in his views of Banáras. The massiveness of the pillars, which are built up of single stones without mortar, has ensured permanence.

Other remains near are held by us to be of equal antiquity. These have been preserved by being used as tombs for the burial of great men or of saints. With the wealth of material lying about, the Muslims of Banáras appear seldom to have built a tomb, but at Jaunpúr there are most elegant mausoleums in which little or no Hindú materials have been employed.

The strange way in which pillars have been used as architraves at Bakharyá Kund is very singular, but the height of absurdity was at Sayyidpúr Bhitari, a great Buddhist site, where I saw a linga put up for a Muhammadan head stone at a grave, with a little niche for the lamp cut in it, and this linga had been carved out of a Buddhist column. After this, one can wonder at no amount of conversion or alteration by the Muslims.

I trust that in the above notes I have shewn some ground for the views I hold in regard to the buildings, the date of which is under discussion, and I would beg to refer the reader to the ample details in this Journal for 1868.



A few of the incised writings on stones at *Bakhariya Khund, Benares, chiefly in situ.*

𑀘 𑀙	Cha ma. Initials of names in the Gupta character.	
𑀓 𑀔 𑀕	Nā ra' lla. Gupta type.	
𑀕 𑀖 𑀗	Ra ma ta. name in Gupta.	
𑀘 𑀙 𑀚	Ga? s? Pa. name in Gupta.	
𑀛 𑀜	Na pha - ?	
𑀝 𑀞	Sa nka for Sanku <small>a pole or a column</small> <small>a stake a latch pin</small> Gupta.	
𑀟 𑀠 𑀡	?? Gupta	
𑀢 𑀣 𑀤	Ku ta na? If the last syllable be ra the word would mean post to which the churning pan is fixed. Gupta	
𑀥 𑀦	Vi ja Base of column	Gupta
𑀧 𑀨	U ya a straight bar	do
𑀩 𑀪 𑀫 𑀬	Ha ri da lla Name	do
𑀭 𑀮	Pa la for Bella - a Name meaning spirally fluted	do
𑀯 𑀰 𑀱	Va dha ma a Name	do
𑀲 𑀳 𑀴 𑀵 𑀶 𑀷	Ma ka ra ma dha In the middle of — ?	do
𑀸 𑀹 𑀺	Ra ca na. R of the left	do
𑀻 𑀼 𑀽	Va re ha for Vahar. enter range? or Karna of the long enclosure?	do
𑀾 𑀿	Na bi New - or Ninety	do
𑀿 𑁀	Ki cha Middle (as kmas)	do
𑁁 𑁂 𑁃	Tha mma a pillar	do
𑁄 𑁅 𑁆	Ja hu thu Name	do
𑁇 𑁈 𑁉	U pa ra Of the upper course	do
𑁊 𑁋 𑁌 𑁍	Pha? ra da Ha? ra da Pico marked so E	do



*Studies in the Grammar of Chand Bardai.*—By JOHN BEAMES, B. C. S., &c.

As the first fasciculus of the text of this ancient poet has now been published, it may be hoped that scholars in various parts of India will begin to co-operate with those few persons who have hitherto had access to the MSS. in elucidating the mysteries of his crabbed and archaic style. The time seems opportune, therefore, for collecting such observations as I have been able to make from time to time on the grammatical peculiarities which Chand's language exhibits. I have not been able to study the whole of the vast work, indeed such a task would take up all the time of more than one student even if he were not like me much occupied with official duties; but as the style, even in its irregularities, seems to be uniform throughout, notes on those books which have been examined, will probably be found applicable to the rest. The illustrations hereinafter given are taken chiefly from the 1st book as it is now in print. The 19th, 64th and 65th books, have also been cited. There are, moreover, several quotations from various parts of the first eighteen books, and one or two from the 21st, the celebrated Mahoba Khand.

By way of getting at a sound working basis, it is necessary first to clear out of the road certain obstructions partly peculiar to Chand and partly shared by him with all early Indian poets. The first of these is the uncertainty of the spelling; in respect of vowels, we find the same word written at one time with a long vowel, at another with a short one; vowels are inserted or omitted at will, and diphthongs are written in two or three different ways. In respect of consonants, arbitrary insertions or omissions occur, double consonants are written as single, and single as double, aspirates are deprived of their aspiration, and unaspirated letters are aspirated at will. The following examples may be taken:

a. Vowels. नारि and नारी; वात, वत, वत्त and वत, अकास and आकास; बेलि and बेली; रिष, रिषि, रिष्य and रिषी (अषि); गिर and गिरि; धुच, धूचा, and धूम; दन्तयं for दांत or दन्त; सैल, सयल, सदल, सेलह(शैल); जां, जवं, and जवन; गौरि, गौरी, गउरि, and गवरी; नगर, नयर, नर and नेर; मुक्क, मुक्कौ and मुक्कौं; मुक्कियो and मुक्को; मनुष, मानुष्य, मानष and मनष; सैति, सैती, सैति and सैत; जै, जय, जइ and जया; विनस्सया and विनास्या; एक, इक, इकह, इकि and इक्क, दो, डुद and दोय.

b. Consonants. पडकर, and पोखर; अग्नी, अग्नि, आगि and आग; भयो, and भौ; सीष and सीस; कारज and काज also कज्जह; विप्र and विप्प; घेह and गह; अचरिज्ज and अचरज; गुरु, गुरयं, and गुर; पुत्र and पुत; कम्म, कम्म, क्रम्म काम; हय्य, हत्थ, and हाथ; ब्याह बीवाह; and ग्यान गियान, and अस्त्रान, सनान, and न्हान; मग, मग्ग and मगह; सिव, शिव, and सिभ; सब, सव्व and सभ; गाढ गाड and गद्ध; अदभूत, and अदभूत, and अबधूत; with many others.



Two explanations suggest themselves for this state of things. In the case of alterations which affect the metrical quantity of the syllable, we may suspect that they had been made *metri causā*, as is customary in Hindī poetry; and in those which do not affect the quantity, we can often see various forms of the same word in successive stages of phonetic corruption.

But those two explanations do not account for every change, nor is all yet explained, even if we add the ignorance or carelessness of copyists. Moreover, we are led to be very shy about using the *metri causā* argument from observing the extreme laxity of the poet in this respect. Looking at his metres simply according to the name they bear, we may divide them into three classes:

- 1st. Those identical with Sanskrit metres.
- 2nd. Those peculiar to the poet.
- 3rd. Those identical with modern metres.

Leaving out the second as indeterminable at present, if we take the first and third we find that by no process can we make them scan. We may indulge to the full in the liberty of inserting or omitting the unwritten short *a*, we may pronounce diphthongs as one, two, or three syllables, but not even thus can some of the lines be brought to accord with the scale. Sometimes ten lines will scan quite accurately, and the eleventh be all wrong. The bards of the present day call Chand's style the '*ḍingal bhākhā*,' as contrasted with '*pingal bhākhā*,' or verse constructed according to strict rules of prosody. It must be remembered that many of these poems were *impromptu* productions, and most, if not all, were written to be sung, and any deficiency of syllables could be covered by prolonging one sound over two or three notes, as often happens in English songs, or on the other hand two or more syllables could be sung to one note as in our chanting. Where so much license exists, we cannot use the metrical argument except with great caution.\*

We are, therefore, driven back to the conclusion that in Chand's time the form of words and their pronunciation was extremely unfixed. This is probable from historical considerations also; and the use of the conclusion itself to us in our present enquiry is that it removes out of the way the necessity of attempting to establish a fixed set of forms for words and inflexions. We take all Chand's words for the present as they stand, we take each word in four or five different forms if need be, and do not trouble ourselves to find out which is the right form for Chand's period, simply because we do not believe there *was* any right form, any one form, that is, more used and more generally accepted than any other. In fact, we

\* Since writing the above, I have been informed by Dr. Hoernle that he does not find Chand's metres so irregular as the bards report, but the learned professor allows himself to alter the spelling of the text to bring the words into agreement with the metres, a practice which seems somewhat premature.



recognize the thoroughly transitional character of the language we have to deal with.

The second obstruction to be removed is that of texts; so far as I have seen, the MSS. at present available, some five in all, have all been copied from the same original text, and servilely repeat the old mistakes. Where they differ from one another, we can generally detect merely an additional error of the copyist. It is not necessary therefore to enter upon a detailed collation of texts, such a process would not lead to our finding out or establishing one settled and correct reading. Sometimes for thousands of lines together, there is not the divergence of a single letter between the whole five MSS., the same obvious errors being faithfully repeated by all. Historically the Baidla MS. has the best right to be considered the representative of the original text. Tod's and Caulfield's MSS. belonging to the Royal Asiatic Society, were made for the officers whose names they bear in the second decade of the present century, as stated in the colophon to each, though it is not stated from what older MS. they were copied. The Bodleian has no colophon, but agrees, as far as I was able to compare it, with Tod's. The Agra which is the worst, and most carelessly written of all, is also from the same origin, with a great many extra blunders of its own. I do not know from what source the translations lately printed in the 'Indian Antiquary' are derived, but from the absence of proper arrangement and the scanty nature of many of the extracts, it is probable that the MS. was not a perfect one. As to the many imperfect scraps which may be found here and there in the libraries of native princes, they are so fragmentary and so interspersed with matter which Chand never wrote, and their language has often been so obviously modernized, that it will be wiser to disregard them altogether, classing them under the head of "pseudo-Chand fragments," and sticking to the few complete copies which are accessible. For working purposes, Dr. Hoernle and myself are taking Tod's as our basis, occasionally assisted by the Baidla and Agra. Caulfield's and the Bodleian being locked up in English libraries cannot be used.

Taking then the work as it stands, and not troubling ourselves in our present initiatory stage with either spelling or text, the following notes may be found useful to start with, though many of them may have to be modified as we learn more about our subject. For it must be steadily borne in mind that we are only at the beginning of the battle, and have no predecessors in the field, of whose labours we can avail ourselves. Everything hereinafter stated, is therefore tentative, and, *pro hac vice* only, dogmatizing would be premature. Moreover, Chand is the earliest poet in the language, and we can therefore illustrate him only by his successors; his relations to those who went before him are absolutely indeterminable for the present, and will probably long remain obscure.



The pronoun as the oldest and most characteristic part of the language may be taken first. The forms observable approach very closely to those in use in all the Hindī poets down to a late date, the pronoun being peculiarly tenacious of its ancient forms.

Both in the noun and pronoun, the synthetical process has been to a great extent rejected, while the analytical is as yet in an imperfect state of development. Thus, three states or forms of the singular, and three of the plural, may be detected in the pronoun: first, the direct or simple form, used for the nominative: second, the oblique, used for all cases, sometimes with the addition of post-positions as *कौं, सौं, ते, मझ*, etc., but more often without any distinguishing mark: thirdly, a special form for the genitive.

The pronouns of the first, second, and third persons are exactly parallel, the first being modifications of a theme *mo*, the second of *to*, and the third of *tā* (*yā* and *vā*).

It will perhaps be useful in a little known author like Chand to give rather copious illustrations of each form first, and then to tabulate the results at the end.

The commonest form for the nominative of the first person is *हैं*. This is derived from the Skr. *अहम्* by rejection of the *अ* and resolution of the final *m* into its compound elements, as in *गांव = ग्राम* (see my *Comp. Gram.*, Vol. I, p. 254). One example may suffice for this very frequent form.

तौ हैं इण्डां देह ॥

Then I quit the body (*i. e.*, kill myself) I. 157. 2.\*

Differing only by the omission of one of the top strokes and therefore to be regarded more as a variation in writing than as a separate form is *हों*, as

सो हों सबै सुनत हों मात ॥

I am (constantly) hearing all that, O mother. I. 160. 4.

हों जानि ग्यान दह कहों तोहि ॥

I knowing science tell this to thee. III. 27. 50.

The form *मैं* often written *में* and so hardly to be distinguished from the post-position 'in,' occurs in a few passages, as

में सुन्या साहि बिन अंघि कीन  
तजि भोग जोग मैं तप्य लीन ॥

I heard the Shah had deprived (him) of eyes.

Abandoning food I practised austerities and penance. LXV. 110, 17-18

In these lines, and wherever else it occurs, *मैं* is used before the past tense of an active verb, showing that it was still regarded as an instrumental, as it is by origin from the instr. of Sanskr. *मया*, Prak. *मए* and *मइ*. Chand I believe wrote simply *मैं*, as in Marathi *मी*; the *anunāsikā* is a modern

\* The Roman numeral indicates the Book of Chand's poem, the first Arabic numeral, the canto or poem (*Kavitt*), the second the line. The numbering follows my list in J. A. S. B., Vol. xli, p. 204.



addition, so is the use of मैं as a nominative, and the modern fashion of saying मैं ने is founded upon ignorance of the true nature of the word and contains the instrumental twice over.

For मोहि, commonest of the oblique forms, innumerable examples may be found. Two may suffice, as the form is also in use in mediæval Hindi, down to the seventeenth century at least.

कह्यौ मोहिनि वर मोहि ॥ I, 192. 2.

• The lord of Mohini (Durgā) hath said to me.

नही मोहि काम पिता राजधान ॥ LXIV, 366. 9.

There is no business for me in my father's palace.

(i. e., What have I to do with it?)

It is apparently Chand's idea of metre, for he has some ideas on the subject, that leads him to shorten this form constantly into मुहि, as :

जो मुहि ढुंढा निगलिहै. I, 170. 2.

If Dhundha shall swallow me.

तब लगि कष्ट दरिद्र तन ॥

• तब लगि लघु मुहि गात ॥

जब लगि हों आयौ नही ॥ तो पाइ न सेबात ॥ I. 276. 1-4.

Till then pain and poverty (were in my) body.

Till then my limbs were light; (i. e., mean, contemptible),

As long as I came not (to thee),

And worshipped at thy feet.

The final short *i* is sometimes omitted, as

मुह सुभ्रमै रह मत ॥ I. 179. 2.

This opinion seems (right) to me.

Commoner than any except *mohi* is the form मो, used for all cases, sometimes with, but oftener without, post-positions, as

किम उधार मो होइ ॥ I. 188. 11.

How shall there be salvation for me.

• जिहि हत्यौ थप मो तात गर ॥ I. 49. 9.

He who killed the snake (on) my father's neck.

• भट जाति कवियन नृपति ॥ } VI. 18. 1-2.

• नाथ नाम मो चन्द ॥

Bhat by caste, king of poets.

Lord! my name (is) Chand.

बैसी कहि मो कजं डर पाइ ॥ I. 160. 1.

Having thus said for me you find fear.

(i. e., You put fear into mind).

जो मो सों साच न कहौ ॥ I. 157. 1.

If you do not speak the truth to me.

Instances of the form मुभ are also frequent.



इह धरनी मुझ पित परपित ॥ I. 279. 1.  
This land (was) my father's and my ancestors'.

का किहि वंसहि उपज्या ॥  
तूं मुझ जंपहि माई ॥ I. 147. 3, 4.  
Who (am I), from what race sprung  
Tell thou to me, O mother.

Instances of मेरे are as follows :

मेरे कहूँ दाय न आवड ॥ I. 160. 2.  
You have no pity on me.  
(Lit. Of me any pity not comes.)  
सत भात मेरे हते ॥  
Seven brothers of mine are slain. V. 61. 3.  
इह मेरी अरदासि ॥ (i. e. عرضداشت).  
This is my petition. I. 228. 2.

For the nominative plural हम is universal ;

हम तुम कबडं नहि विरड ॥  
We (and) you had never strife, I. 210. 29.  
हम तुम काम इहि पैत आज ॥  
We and you (have) business (on) this field to-day. Ib. 31.  
The oblique form is हमहि and the genitive हमारो ० रे ० री.

आलहा सुनो हमारो वानीय ॥  
Alhá, hear my word. XXI. 145. 2.

The nom. is used when we must translate by a genitive or other oblique case, as in हम मरन दिवस, the day of the death of me. I. 210. 27. It is a nom. again in

कहै कन्ह हम मानी सबह ॥

Quoth Kanh, honorable (are) we all. VI. 82. 1.

The post-positions are affixed as in the modern language हम सौ, etc.

For the second person the singular nom. तू has been quoted above, as also the plural nom. तुम; the former has an emphatic form as in the hymn to Bhavani—

तुंही गङ्ग गोदावरी गोमतीयं ॥  
तुंही नर्बदा जमना सरस्वतीयं ॥  
Thou art Gangâ Godâvari, Gomati,  
Thou, Narbadâ, Jamunâ, Saraswati. LXV. 16.

And so on through some forty lines. In the following, however, we have the oblique form : the only difference is the absence of the anunâsikâ. The *i* is lengthened metri gratiâ ;

सबै कज्ज अगै ॥ तुंही नाम लगै ॥  
Before all affairs. Thy name is affixed.

Hymn to Ganesha, I. 26. 26.







scheme of the pronouns as far as I have found them, or can construct them from analogy. The latter are in brackets.

## 1st Person.

## 2nd Person.

Sing. Nom. **हैं, हे**Oblique **मेहि, मुहि, मो, मुझ, मुह**Genitive **मे, and मेरौ •री •रे****तूं तुंछि**

तेहि, तुहि, तो, तुझ

तुच, तो, तेरौ •री •रे.

Plur. Nom. **हम**Oblique **हमहि**Genitive **हमारौ**तुम occasionally in *Gāthā* तुमं

. तुमहि

[तुम्हारा] तुम्हरे •री

## 3rd Person.

Sing. Nom. **सो. he**Obl. **ताहि, ता**Gen. **ता कौ etc.****इह this इहे**

याहि, या

याकौ etc.

**उह that उहे. वह.**

वाहि. वा

वाकौ etc.

Pl. Nom. **ते तेउ****ये इहे****वे**Obl. **तिनि, तिनै, तिन****इनि. इन****[उनि] उन.**Gen. **तिन कौ****इन कौ****[उनकौ]**

ताहि is shortened into तिही, and thus corresponds with जिहि (pl. जिनि and जिनै) from जौ.

The interrogative is कौ or को, oblique किहि, pl. किन. Of other forms may be cited कितनौ and its series, also कैसौ and its series shortened at times to किसे, जिसे etc. A curious double form occurs in the lines

जाके देह न होई ॥

ताहि कैसें कें गहियै ॥

He of whom there is no body,

Him in what way can one catch? I. 161. 8.

I suspect कै here to be a relic of the verb *kar*, as in the same passage occurs the phrase

जिहां दिष्ट नह भिद ॥

ताहां कैसें करि सुझे ॥

Where the sight does not penetrate

There in what way can one see? *ib.* 4.

It would mean in full 'how having done? in what manner having acted.' The oblique form of the plural is used adverbially for 'how?', and takes anuswāra as in the first of the two last quoted instances. In the following it stands alone—

सारङ्ग दे कैसें जुघ कीना ॥ I. 154. 4.

How did Sārang De make war?

For कितना and its series we have also कैतौ and the rest.

कैते नर रिष राई ॥

भए सुर दानव अगे ॥ I. 162. 3-4.

How many men, and Rājārshis,

Have there been (and) gods and demons of you.





Chand's noun is rather a formless affair, as might have been expected, not only from the age in which he wrote, but from the style common to all those most obscure and difficult of writers, the Hindi poets. Like them, he loves to string together crude nouns, and leaves the reader to construct sentences out of them by mentally supplying the needful case-signs. This he does not merely in his rhapsodies where perhaps no very definite meaning is to be expected, but even in his narrative portions. Thus in the very first stanza

थिर चर जङ्गम जीव चन्दनमयं  
(Literally) Firm. Going Living being. Life. Possessing qualities of sandal-wood.

All which may be put together into a sentence as the reader likes; or again—

कल बरनि बरनि सु कन्द.  
Kali (yuga). Heroes. Heroes. Well. Strife.  
नृपराज दुज गल बन्धि  
King. Brahmin. Neck. Bind.

Other instances afford a clue by some verbal form, or by the context; as

सब जन सोच उप्पनौ ॥

To all men anxiety arose. I. 149. 2.

for सब जननि कौं ;

सेव बड्ठ द्रव उपावन ॥

By service much wealth is gained. I. 262. 8.

which may be rendered in Mod. Hindi thus सेव से बड्ठन द्रव का उपायन होता है.

दरबार ताल रधि भरि बारि ॥

The darbár became like a tank full of blood as water. V. 37. 1.

In full thus—दर्बार ताल जैसा रूखा रधिर से भरा रूखा जैसा पानी से.

The case-signs, however, are fully and freely used when the metre allows, and I shall now give instances of their use, exhibiting the more ancient as well as the transitional forms, and those which are identical in form with the modern post-position.

The objective case, including both dative and accusative, is indicated by the preposition, concerning whose origin I reserve my opinion for the present, कऊं.\* Variant forms are कऊं, कौं, कौं, from the last of which by dropping the anuswara comes the modern को.

जचै सु सोई तुम एक कऊं ॥

He seeks one of you. I. 88. 9.

\* Provisionally, Trumpp's theory of the origin of this form from कथं, resulting from कृतं by aspiration of the त owing to elision of the री, may be accepted, but there are difficulties even in this theory. (See his Sindhi Gram. p. 115). Caldwell's connection of this form with the Dravidian ku (*kku*) must in any case be regarded as finally exploded and no longer tenable.



प्रातः समे वर दुजन कजं ॥

बंदि अण्ण कर दीन ॥

At morning time the hero to Brahmans

Dividing with his own hand gave (gifts) VII. 5. 3-4.

करि दंडौत सबन कजं ॥

Having made obeisance to all. VI. 38. 2.

Another instance was quoted a while back under *सो*. The *u* is lengthened *metri gratiâ* in

प्रिथीराज मौरव युद्ध कलं ॥ हम परिमाल बुलाइ इव ॥

For the war with Prithirāj at Mahobā Parimāl has summoned us, XXI. 84. 6.

The other forms are too common to need quotation.

Under the head of ablative, come several post-positions. *सम* is the older form from which come the forms *सै*, *सै* and *से*; thus—

कहै दूत प्रिथिराज सम ॥

Says the messenger to Prithirāj. XIII. 16. 1.

In Mod. Hindi, verbs of speaking take *से*; the original meaning of which is shown by its derivation from *सम* to be 'with,' though in modern times often used in the sense of 'from;' for which latter the proper word is *ते* or *तै* to be noticed presently. Instances of *सै* occur frequently, one has been given above, another one of *सम* is कहै कंति सम कंत, 'says the wife to her husband,' I. 7. 1., where *सम* precedes the noun; as it stands we should understand it to mean 'says the husband to the wife,' there is, however, no doubt from the context that it is Chand's wife who speaks to him, not he to her. The use of the particle before the noun, shews that it had not yet thoroughly sunk into a post-position, but is still used as a conjunction, as in Sanskrit.

*परि* with forms *पर*, *पै*, and *पै* is used as in ordinary old Hindi.

*ते*, mostly with abnormal anuswar *तै*, is I take it from *तो*, (just as *से* from *सो* or *सै*) a regular ablative termination in Prakrit, from the Sanskrit adverbial ablative in *तस्मिन्*, as *ग्रामतस्मिन्*, from a village, though it has become severed from the noun and is treated as a post-position. Instances are

ता के कुल तै उष्यनौ ॥

From his race sprung. I. 164. 1.

तुम कहौ करं जीव तै वध ॥

Say ye, (and) I make him destroyed from life. I. 178. 21.

(i. e., If you give the order, I will kill him.)

For the locative, we find the many-formed post-position represented in modern times by *में*. In its earliest form it is *मध्ये*, then dropping the *e*, *मध्य*,

अमृत सु घत मध्य वसि ॥

Immortal dwelling among mortal. I. 3. 8.



इह बोलि बानी दल मध्य आयौ ॥

Having spoken this speech, he came amongst the army. XXI.  
10. 17.

Next comes the solution of the semivowel into its vowel, giving मधि,

हजार सु तीन परे घर मधि ॥

Thousands three fell on earth. XXI. 7. 59.

Sometimes written मडि, when a long syllable is required,

• जोगिनीय गई रागिनी मडि ॥

The witch went among the queens. I. 178. 9.

(रागिनी for राज्ञी like अगितान for अज्ञान and आग्या for आज्ञा)

The natural transition from घ + य into ञ् (see my Comp. Grammar, p. 326.) gives the form मञ्जि—

मुझेव परिय मञ्जि बिल अयाव ॥

Fell headlong into the bottomless pit. I. 79. 10.

(मुझेव a form of 3 sing. pret. for मुझ्यौ from मोच and therefore meaning “was set free,” in combination with परना = पडना ‘to fall,’ it means ‘was set free falling,’ i. e., ‘fell unrestrainedly or headlong.’)

Final short vowels are of very little account in Hindi, and are omitted or inserted at will. Thus forms मंझ and मञ्ज, with inorganic anuswāra, and in the former with lengthening of the vowel, occur.

उपवाग मंझ चलि गये आप ॥

They themselves went into the garden. XXI. 5. 6.

(उपवाग a curious combination of उप with غ, after the fashion of उपवन).

को राजन कवन घर मंझ ॥

What king, in what land? XXVI. 18. 4.

The metre is Gatha which accounts for the Sanskritisms. Chand always puts an anuswara to the last syllable of his words when writing Gatha, he seems to be under the impression that by so doing, he is making them into Sanskrit! In the next line we get

परचर उजेन मंझ ॥

In wealthy Ujjain.

(परचर = प्रचुर abounding in wealth). I have seen also frequently मंझ and मंझ, but have lost the references to them in my notes. A lengthened or secondary form मंझार is also in use with the more definite meaning of “in the midst of.”

नर नारी लज्जा गई ॥

फागुन मास मंझार ॥

Men and women cast aside shame

In the midst of the month of Phagun. XXIII. 1. 4.

Alluding to the Holi festival.

लै पवरि सहर पडचो मंझार ॥ (सहर = شهر, and पवरि = خبر).



Having received the news she arrived in the midst of the city. I. 178. 4.

अरि भजि गये गिर बन मझार

The enemy fled into the hills and forests. I. 206. 38.

A step further brings to the rejection of the organic portion of the aspirated letter, leaving only *ह*, we thus account for the form *महि*, which is extremely common.

कज्जल महि कसूरी ॥

रानी रेहंत नयन शृङ्गारं ॥

Putting musk into lamp black

The queen streaks her eyes for ornament. (Gāthā) I. 20. 1.

(रेहंत from रेखा, line).

दिन सत अवधि अंतर बडत ॥

हरि सु उदरै दिनक महि ॥

A period of seven days is ample time,

Hari can save in a single instant. I. 60. 12.

The post-position is here affixed to the genitive as indicated by *क*, see further on under that case.

भारपंड महि चरत ॥

Grazing in Jhārkhand. I. 61. 3.

It is lengthened to *माही*—

देखति नृपति बसि नींदा माही ॥

Seeing the king sitting in sleep. I. 191. 4.

लखौ बीर जलहन पैया धर मांही ॥

The hero Jalhan was smitten and fell on the ground. XXI. 264. 20.

And if I am right in my translation, still further to *मांही*—

पिय रन मांहीं मरै ॥

नारी सती न होय ॥

(If her) husband die in battle,

The wife does not become a *Sati*. XXI. 175. 1.

Lastly, we have the ordinary modern form *में*, the anuswara of which is, as so often the case in Hindi, a mere inorganic accretion..

पिय हि मरत बिया रहै । करै पुत्र को आस ॥

बह नारी निहचें करै । बडे नरक में वास ॥

The wife who survives when her husband dies, and hopes for progeny,

That woman certainly makes her abode in the great hell.

XXI. 174.

I suspect the whole of this verse to be a modern interpolation. The style and versification are too regular for Chand, and the sentiment is



repeated from the preceding lines which are more rugged and Chandesque

निहचै वेद नरक ताहि भाषै ॥  
पिय कौ मरत बिया तन राषै ॥

में, however, found in many passages where there is no reason for suspicion.

एक मास में नगर बसायो ॥

In one month he established a city. I. 218. 3.

बली कन्ह कै कंध में घग नायो ॥

He brought down his sword on the shoulder of strong Kanh.  
XXI. 264. 24.

Of the instrumental case indicated by ने as we have it in modern times, I cannot point to any clear instance. When we come to treat of the verb, the construction involving this case will be illustrated.

There remains only the genitive, and this is indicated by the particles कौ, के or कै, and की, as in ordinary Hindi. Sometimes shortened to क as in one instance quoted above. Two passages may be noted in which the older form कैरौ, कैरी, which has been recently brought to light by Dr. Hoernle, seems to be found. The first is that in the nineteenth (now 20th) book, in which I formerly saw a pret. of a verb कैरना. This view must now be given up, and the passage translated differently; it is a very obscure passage, however, and I now only give a tentative rendering. It is the rout of Shihábuddín's army by Prithiráj.

दौरे गज चंघं चाडवान कैरौ ॥  
करीयं गिरदन चिहों चक फेरौ ॥

Blind (from flowing of blood) ran the elephant of the Chauhán,  
Making a circle he surrounded on all four sides. XX. 141. 7-8.

The other passage is at the meeting of the armies before Mahobá.

कियौ नद नीधान फौजें सुफेरी ॥  
भिदो दिष्टि सैं दिष्टि चाडवान कैरी ॥XXI. 29. 9-10.

फौजें in Chand and in other bards, though plural in form, is always treated as a feminine singular.

The kettle drum made a noise, the army turned,  
The sight of the Chauhan was separated from view.

That is, the two armies lost sight of each other, probably from the dust they raised. It will be observed that कैरा in the first quotation agrees with the masc. गज, and कैरी in the second with the fem. दृष्टि, so that we have so far confirmation of Dr. Hoernle's theory. I have traced forms करा and करी, as well as कर, in the cognate languages. From the vast ocean of Chand fresh examples will probably be fished up, as we get to know more about it; at present I have only these two instances in my note book.



With regard to the modification of the base in nouns nothing noticeable is to be found, except that Chand occasionally uses the nom. or direct form of bases in *ā* before the post-position, as

राज आए डेरा मधि॥

The king came into his tent. I. 193. 2.

Where we should expect डेरे; and again

तिहि बेरां आयौ कहै । डेरा माहि पनग॥

At that time came somehow into the tent a snake. I. 243. 4.

Instances of this practice may be found in Tulsi Das and later poets, and in the tika to the Bhaktamala, and it is universal in Bengali.

There is a curious word in two or three forms, as usual with Chand's words, about which there is some obscurity. It is *ऊँतो* or *हंत* and must, it appears to me, be translated "from;" though it looks at times like an imperfect of the verb *हो*, in which case I take it to be one step in the process by which we get to *था*, which will be noticed under the verb. I give the examples I have noted. In the first, Bisal De is asking his minister about the shrine of Gokaran which he wishes to visit.

केतीक दूर अजमेर हंत ॥

दिन दोय मंभ नोकै पहंत ॥

How far (is it) from Ajmer?

In two days easily one arrives. I. 178, 47.

Here, by the bye, is *मंभ* which I wanted a while ago. When Bisal gets to Gokaran he meets a Siddha who asks him where he comes from.

कहत सिध किहि पुर ऊँतो ॥

कोन गोत किहि नाम ॥

रहि तोरय आये ऊँते ॥

कै आगै कोर काम. I. 184.

Saith the Sidha *from* what city,

What family, what name?

Had you come here on pilgrimage,

Or (have you) further on any business?

In the first line *ऊँतो* must be "from," but in the third line *ऊँते* is pl. of *ऊँतो*, = *था*. In the next passage the doubt is still greater, and the whole passage is a peculiarly crabbed one.

इति हनुफालय बंद ॥

बल वरनि वरनि सु कंद ॥

नहि नाल पिंगल जोर ॥

दुज ऊँतो दुजनिय भोर ॥ I. 48. 1-4.

Here begins the Hanûphâl metre.

In the Kali (Yug) heroes (had with) heroes strife,



Not together harmony or union,  
Brahmin *was* to Brahmins cruel.

नाल is still used in Panjabi for "with," भोर is still Marwari भूरा 'wicked, cruel,' mod. Hindi बुरा. Now in this passage ऊंते may either be "was," or we may render it "from," as "Brahmin *from* Brahmins (was) averse, or cruel." The meaning would more strictly be 'towards,' but in the mod. language से would be quite admissible. On the whole, though, I am in favour of regarding it as a verb in this passage.

In those places where it is clearly a postposition, it may still be derived from the root हो, and be analogous to the Bengali होईते, 'from,' Marathi हून, and comes from the Prakrit ablative plural ऊन्ता.

The plural is formed by अनि, the final इ of which is frequently omitted, and the plural itself is often represented by the singular form. The practice of confounding the two numbers is as old as Chand, and probably, for all we know, older. Plural verbs are used with singular nouns, and feminine verbs with masculine nouns and vice versâ, as in the line

• तब सकल भइय एकत्र नारि ॥

Then all the women were assembled together. I. 178. 1.

Where नारि is plural in sense, though singular in form, while the verb is singular.

सब मैति कछो ॥

All the wives said. *ib.*

Here again मैति is fem. pl. and the verb masc. sing., which arises from the instrumental construction.

कन्या कियो अंदोउ ॥

The bride made lamentation. I. 171. 2.

### III.

The verb is modern in form, exhibiting the birth of the analytical system, as yet weak and uncertain, but already indicating the direction of its future development.

The number of forms in use is few, and Chand seems to regard verbs as a superfluity in many instances, omitting them at will, and often substituting for all forms of the verb what I may call the verbal crude form, produced by adding a short *i* to the root. Though this form is strictly speaking that of the conjunctive participle "having done," and the like, yet there are countless passages in Chand where it will not bear this meaning, but is a present, past, or future, as the context may require. For instance in

अनल अनि मातह मित्यो ॥ कहि सब बात सुनाइ ॥

लोग मछाजन संग ले ॥ भूमि बसार् जाइ ॥ I. 309.



Anal *having come* met (his) mother, *having* told and recited the whole affair,

People and merchants *having* taken with (him), *having* gone colonized the land.

All the forms in *i* as *आनि*, *कहि*, *सुनाइ*, *जाइ* are true conjunctive participles, and the only finite verb in sense is *बसाई*, and even that is a participle in form agreeing with the fem. noun *भूमि* and postulating the instrumental form of the agent. In modern Hindi we should have *अनल ने भूमि बसाई*. On the other hand, however, we find the form in short *इ* requiring a finite sense in the following :

सिर मंडि छत्र बोसल नरिंद ॥

Bisal the king arrays the umbrella over his head. I. 166. 1.

If we translate *मंडि* "having arrayed," the sentence will be incomplete as there is no finite verb following. The explanation of this use of the *इ* form is probably that it is a shortening of the *ए* of the 3 pers., and in this place it would stand for *मंडे*. The simple indef. present is the same in all the modern Aryan languages, and in Chand presents no peculiarities.

Singular.		Plural.	
1.	करौं, करूं		करैं
2.	करै		करौ
3.	करे		करैं

It is unnecessary to quote examples for the regular verb ; the irregular verbs (to use a rather unscientific term) will be noticed presently.

For the simple past the forms are participial and the same for all three persons on account of the implied or expressed instrumental construction.

Singular.		Plural.	
1. 2. 3.	{ masc. चल्यौ		चलै
	{ fem. चली		चलीं

In the masc. sing. the final *यौ* is sometimes separated by a short *a* from the root, according to no rule apparently ; for in I. 170. 12 we find *तहाँ सिंघ वर विनस्यौ* ॥ 'there a lion destroyed the bridegroom,' while in the very next line it is written *सिंघ विनास्यौ*. As variants of the form in *यौ* constantly occur those in *इव* *एव*, where the *य* has been softened to the palatal vowel and the vowel *इ* hardened to its semivowel. Thus

अथ इपि इपि अमेव गाव ॥

Looking looking down wandered the cow. I. 79. 9.

In the same passage occur *सुखेव*, quoted above, and *कनेव* 'she heard' (root *कर्ण*). Instances of the shorter form are

फिरि आबइ बुझिब तांम ॥

Again *Alhá* spoke in wrath. XXI. 109. 47.

Also *चडिब*, *चलिब*, and many others. The form in *एव* is common in *Tulsi Das*.



For the future where no very strong idea of futurity is implied, the indefinite present is used, as in *तौ हौं इडौं देह*, 'then I *will* quit the body.' But the ordinary form of the future is derivable directly from the second or periphrastic future of Sanskrit, as in *भवितास्मि*, *भवितासि*, and in the third person postulates a non-classical form *भवितास्ति*, for which in Sanskrit we have only *भविता* without the substantive verb. The forms are—

Singular.	Plural.
1. • चलिहैं	चलिहैं
2. चलिहै	चलिहै
3. चलिह	चलिहैं

To be referred back to a Sanskrit series, Singular *चलितास्मि*, *चलितासि* [*चलितास्ति*]; Plural *चलितास्मः*, *चलितास्य*, [*चलितासन्ति*], but in all cases with elision of the syllable *ता*, so that we should imagine a form *चलि+अस्मि* *चल्यास्मि*. The terminations rest on the excessive corruption of the feeble verb *अस्*; so that *अस्मि* becomes *अस्मि* and then, by rejection of *अ*, *स्मि*. The resolution of *म* into its component parts, the labial and nasal, so frequently noticed in other instances, gives *हैं*, whence *हौं*, so that we have three words *हौं*, one from *भवामि*, a second from *अस्मि*, and a third from *अहं*. As a good instance of this verb in a transitional state the Marathi forms may be adduced.

Singular.	Plural.
1. आहैं (अस्मि)	आहैं (अस्मः)
2. आहैस (अस्मि)*	आहैं (अस्य)
• 3. आहै (अस्मि)	आहैंत (असन्ति)

In old Hindi also, as for instance in Kabir's *Ramaini*, occur the forms *आहि* 'is' and *आहिं* 'are,' from which we get *है* and *हैं* in mod. Hindi.

It would lead me too far away from my present object, which is merely to illustrate Chand's forms, were I to work out all these processes here. I content myself therefore with merely noticing them, and pass on to give examples. Of the first person we have already had the instances *समर्पिहैं* 'I will yield,' as it were, from (*समर्पितास्मि* fut. of the causal of *च* with *सम*) and *धरिहैं*, 'I will place.' The third person, with which the second is identical in form, was shown in *निगलिहै* 'he shall swallow;' for the first plural

हम सांवंत सब जुझिहैं ॥

राज चंदेल न जाय ॥

We nobles all will fight,

That the kingdom of the Chandel may not perish. XXI.

94. 3-4.

\* We must take the full ancient forms *assi*, *asmah*, *astha*, and *asanti*, instead of the more modern classical Sanskrit forms, as the letters which have been dropped in the latter are phonetically necessary to produce the Marathi, Hindi, and other words.



The infinitive or verbal noun has two forms, the abstract in *ana*, and the functional in *iba*. Of the former one instance out of many is

पुरुषातन तिन बंधन विचारि ॥

Having plotted to stop (or the stopping of) his virility  
I. 178. 1.

[पुरुषातन = पुरुषात्मा], and with nominal inflexion,

कियौ चलन कौं साज ॥

He made preparation for going. XX. 28. 4.

जंग जुरन जालिम जुझार ॥ (जंग = جنگ = عالم)

In joining battle a terrible warrior. XX. 31. 5.

The functional form is of very common use, just as it is still in Gânwâri Hindi, in Bengali, Oriya, and Gujrati.

जो विलंब करि रहै ॥

तो ताहि हनिबे कौं आवै ॥

If any one made delay,

Then he came to strike him. I. 198. 7.

उठि लरिबे कौं धायौ ॥

Rising up, ran to fight. I. 254. 7.

The construction is strange, but not unknown to modern colloquial Hindi in

गारि मात सिष्यवै ॥

पुत्र आनल रह सिष्यय ॥

Through learning (it) from his mother Gauri

Her son Anal learnt this. I. 258. 1-2.

In modern Hindi, गौरी मा क सीपने से यह सीपा आनल न.

The imperative exhibits the ordinary forms करु sing. and करो plural, as

जगनक भट अबै घर जाऊ ॥

Bard Jagnak, now go thou home. XX. 77. 1.

Owing to the careless way in which *i* and *u* are mixed up, we have a form in हि—

तिन सु गलह अच्छी कहहि ॥

Say a good word about them. I. 9. 12.

In two quotations above we have seen conversely पावड and आवड used as present indicatives, for पावहि and आवहि.

The present participle ends in *at*, as सुनत, देखत, and in Gatha, as well as occasionally in other metres where a long syllable is wanted, in *ant*, as in रेहत, कहंत. The feminine is in short *i*, as दधति, also of course *i*, as डरती, करती, etc.

The conjunctive participle in *i* has already been mentioned, its original full form is in *iyai*, from the locative of the part. pret. of Skr. Thus from चलिते we get चलियै. (See Trumpp, on *Adi Granth*, J. R. A. S., Vol. V, p.





207. I see nothing in the extracts given by Trumpp in that article to justify his assertion that the language of the Granth is not Hindi, but old Gurmukhi. It is a mistake, though common among Sikhs themselves, to apply the term Gurmukhi to the dialect of the Panjáb, instead of the variety of Devanagari in which it is written, *sed hæc obiter.*)

यसि किये भूमियां धूनि पग्न ॥

Having subdued the rulers of the land with fire and sword.

I. 206. 26.

This is of course often also written with *e*, as सुनिये, whence we get another of Chand's confusions, as this form is also used for the respectful imperative, as in

इह नष्ट ग्यान सुनिये न कान ॥

This destroyed science do not listen to. I. 173. 9.

One of the principal difficulties in Chand lies in his construction; an abrupt and elliptical style is imposed on him by his rules, and he makes it worse by trying to say too much at once. So that we have often to expand four of his words into twelve English, and his transitions are so rapid from one fact to another, that we are often landed quite in the middle of a fresh set of events before we are well quit of the old ones.

The custom of constructing the past tense of transitive verbs with the instrumental of the agent with the post-position ने, though identical in character with the Sanskrit construction, as in तेन जालं विस्तीर्णं, is yet apparently in its present shape at least of modern origin. It is an obscure question what this ने really is. That it is not derived from the एन of the Sanskr. is pretty clear. ने the older form, sometimes written नाई, is a dative, and is, I believe, connected with the same root as the Marathi लागी, Naipali and old Bengali लागि, whence also Marathi ला, the ordinary sign of the dative. It is difficult to decide exactly what Chand's usage is in this respect. While in some cases the agent is in an oblique form, in others it is in the direct or nominative.

The modern Aryan languages know of three constructions or *prayogas*.

1. The *Karta*, or subjective, in which the verb agrees with its subject. 2. The *Karma*, or objective, in which it agrees with its object. 3. The *Bhâva*, impersonal, in which it agrees with neither. They may be thus illustrated in Latin.

Karta—ille urbem condidit.

Karma—ab illo urbs condita.

Bhâva—ab illo urbi conditum.

These three constructions are seen in their full force in that most complicated of all the languages, Marathi, with its irritating three genders and old-world rubbish of that sort. Hindi is more enlightened and simpler.



It has the subjective construction for all tenses of the intransitive verb, and for all tenses of the transitive also, except the preterite in which it admits the objective construction, as राजा ने वान सुनी, also the impersonal as राजा ने लडकी को देखा. In the former the verb agrees with the object, and in the latter is neuter and impersonal, Hindi having amalgamated the neuter with the masc., the verb has attained to the masc. form, though really neuter.

Applying the above principles to Chand, we are struck in the first instance by the absence of ने with the instrumental sense. For instance—

प्रथिराज सुनि कुंवर नें॥

आप बुझाए दित ॥

Hearing it, the prince Prithirāj

Himself invited them kindly. V. 13. 3.

Here if we are to see in this नें our modern friend, the object not being noted, but being understood as living beings, we should according to rule expect बुलायो, and the sentence would run in ordinary Hindi कुंवर ने उन्हे को बुलाया, in other words, the construction would be the impersonal one, the verb would be singular (masc.), unless it be that the verb is here put in the plural out of respect. This instance, however, seems at present quite exceptional, more usually the agent is in the oblique crude form, and both the objective and impersonal constructions are used; a good example of the former is

तिन रक्षा कीनी सु दुज ॥

He protected the Bráhmans. I. 136. 1.

Where the verb agrees with the object *rakshā*, and the agent is in the crude oblique which may be any case we like to call it; again

जिहि रचे सुरग भू सप्त पाताल ॥

Who arranged heaven, earth, the seven hells. I. 11. 11.

The various nouns agree with the verb रचे in the neuter pl. and the agent is again singular oblique. On the other hand, we have the direct or subjective construction in

दह बार बुझ्यो राज ॥

दुज न दियो उत्तर काज ॥

Ten times the king asked

The Bráhman gave no answer (in the) matter. I. 48. 23-24.

And as a remarkable instance of Chand's indifference to the subject we have in one line (I. 49. 9.) जिहि हत्यो अय्य 'he who killed the snake,' and the next line जो हत्यो अय्य, with the direct construction. It is perhaps too early to lay down rules for Chand yet, but it may be hinted that in common with many of his successors in Indian poetry, he generally uses the subjective construction when the agent is a noun, and occasionally the objective or impersonal when the agent is a pronoun, and even in that case he is careless



and quite as likely to use one as the other. As far as I have gone, I have met very few instances of the use of the post-position ने, and several of those seem doubtful.

One example is

बाल्येन प्रथिराज ने ॥  
निशि सुपनंतर चिह्न ॥  
लै जुगिनिपुरह ॥  
तिलक मथ्य करि दिन्ह ॥

In his youth to Prithirāj

In a dream at night (came) a sign :

Having taken Juginipur (Delhi)

He put the *tilak* (of sovereignty) on his brow. III. 3. 1-4.

Here it is clearly a dative.

With regard to the irregular verbs, or to speak more correctly, those which still retain traces of the older synthetical organization, the array of forms is rather varied. Some few well-worked verbs differ from their fellows in this respect that, whereas the latter have taken from the Sanskr. or Prakr. only the root, or some one form on which they have built up their modern verb with all its varied tenses, these verbs of the older creation adhere more closely to the Prakrit and take their preterite from its preterite and some of their other forms from those of the corresponding tense in Prakrit. Thus देना makes its past tense दियौ, from दितो, for दत्त ; also दीनौ from दिषो, and दीधौ from दिडो, all three Prakr. forms. Of the three the commonest perhaps is दीनौ ; to which rhyme कीनौ from करना, and लीनौ from लेना. In one or two passages occurs a form भीनौ, which I have rendered "filled," supposing it to be from भरना on the analogy of करना. In the cases of करना and लेना, Chand has also the preterites कीया and किडौ, लीया, but not लिडौ, the cause of which will be explained below. The three words दीनौ, कीनौ, and लीनौ are often shorn of their last syllable especially at the end of a line, as

कनक तुला तहां कीन ॥

He performed there the ceremony of *kanaktulā*. VIII. 5. 2.

To which rhymes

बंदि अप्य कर दीन ॥

Dividing, with his own hand gave. *ib.* 4.

परिमल जुध पर डकुमै दीन ॥

Parimal gave the order for war. XXI. 5. 32.

दस कोस जाय मुकाम कीन ॥

विच गाम नगर पुर लूट लीन ॥

Having gone ten *kos* he made a halt,

The villages, towns and cities between he plundered. 208. 9-10.

It is one of Chand's favourite rhymes, and in all these cases the subject of verbs is a nom. masc. sing. Of the full forms, the following are examples :



अनंगपाल पुत्री सुरंग ॥  
 पुत्र इच्छा फल दित्रौ ॥  
 नालिकेर फल सुफल ॥  
 मंत्र आरंभन कित्रौ ॥

Concerning the translation of this passage there may be some doubt ; literally it is easy enough, as the meaning of each individual word is well known, but how to put them together so as to make consecutive sentences is a difficulty ; “Anangpal—daughter—beautiful (or, taking *su* as an expletive, ‘delight’)

Son—wish—fruit—gave.  
 Cocoanut—fruit—good fruit.  
 Spell (mantra)—beginning—made.

It probably means that Anangpāl had a daughter whose desire for a son bore fruit (to wit by the birth of Prithirāj), the fruit of the cocoanut is the emblem of marriage, and he or she, commenced some spells, why or wherefore *non liquet*. It is a fair specimen of Chand’s enigmatical style.

सुद चाव चंदेल सु कीनौ ॥  
 यह परिमाल लिख्यो करि दोनौ ॥

Good speed the Chandel made,  
 (Saying) “Parimāl hath written this” gave it into his hand.  
 XXI. 124. 4.

Of the forms दिह<sup>०</sup> and दीध<sup>०</sup> the following instances have been noted :

वर दीधौ डुंढा नरिंद ॥  
 Dhundhā the king gave a blessing. I. 305. 1.  
 प्रथिराज ताहि दो देस दिह ॥  
 Prithirāj gave him two provinces. I. 307. 61.

Here the final syllable is cut off to rhyme with प्रसिद्ध in the next line.

पुत्री पुत्र उद्गाह ॥ दान मान घन दिदिय ॥  
 धाम धाम गावत धमार ॥ मनहु अहि बन मनि लदिय ॥  
 (For) joy (of his) daughter’s (having a) son, gifts and honours  
 many he gave,  
 House to house singing songs of joy, like a serpent finding a  
 jewel in the forest (?).

The past tense लदिय arises from the fact that the verb *lenā* in Hindi is derived from the Skr. लभनं, through forms लहनं and लहिनं, and the pp. in Skr. is लब्ध, whence H. लदिय. Although in Hindi the number of verbs of this class, those namely which form their present from one part of a Sanskr. verb, and their preterite from another, is so small that they have been classed as irregular, yet in the other cognate languages, notably in Sindhi and Gujarati, the number is very large ; for instance Sindhi लभणु to take (H.





लेना) makes its pp. लघे, *i. e.* लब्ध. (See Trumpp's *Sindhi Gr.* p. 272, and my *Comp. Gram.* p. 138.)

I have also noted an instance in which the घ under the influence of the adjacent palatal vowel changes into ज (ज्)—

सगरी नाव जाय बंध किज्जय ॥

आला उदिल उतरन न दिज्जय ॥

Carts and boats he went and stopped.

• Alā and Udil he allowed not to alight. XXI. 86. 1-2.

In Modern Hindi, बध किया and उतर्ने नहि दिया.

Leaving for the present the further discussion of these verbs whose real nature seems not to have hitherto been clearly understood, I now proceed to draw out the manifold variations of the verb 'to be,' whether derived from the root अस् or from भू or (if it be so at all, which I much doubt in Hindi) from स्या.

Illustrations from Chand serve not only for his works, but in many cases also for old Hindi literature in general. Tulsi Das, Sur Das, Kesab Das, Kabir, and others are all writers in virtually the same idiom, though Chand is older and more obscure than most of them, and has occasionally forms which have dropped out of use since his time. It will strike the reader, however, that Chand uses the same word in different stages of development according as it suits his purpose. In the case for instance of मध्य, we have every stage from the pure Sanskrit down to the modern vernacular. In such cases it is generally the modern and later forms which agree with those in use in the general run of Hindi poets. Tulsi Das, though, from his extensive popularity, he is usually taken as the typical poet of mediæval Hindi, is not so really from a linguistic point of view. His language is very rustic, and seems, as Dr. Hoernle has remarked, to contain words and forms taken from all the provinces of Hindustan. Sur Das is much purer and more typical. The forms given below are not then all peculiar to Chand, but many of them he shares with his successors.

The preterite, which for convenience sake I take first, as in a narrative poem like this, it naturally occurs oftener than the other tenses, has three forms.

1st form Sing. m. भयौ, Pl. M. भए

f. भई [भई']

भयौ is very common, as in भयौ ताम तामस राज ॥

Wroth was then the king. I. 48. 26.

यौ भयौ रिषि अवधूत ॥

Thus was the wonderful Rishi. *ib.*

अनंगपाल भयौ राज ॥

Anangpal became king. III. 17. 4.



It is contracted to भौ, in सुनि शवन राज मन भौ उदेग ॥

Hearing the news the king was perturbed in spirit. I. 172. 4.

मन भौ हस करन फुनि आइय ॥

Laughter was in her mind, then pity came. III. 10. 4.

Feminine भइ, as in ordinary mediæval Hindi, as

पुण्य कथा ज्यौं भइ ॥

How the former story was. III. 15. 2.

Plural masc. भए, as भए विकल लोग घाइल उताप ॥

The folk were harassed, wounded, and distressed. XXI. 5. 5.

Of भई, the fem. pl., I have no examples. In तब सकल भइय एकत्र नारि ॥ quoted above, it may perhaps be that a fem. pl. is meant and the anuswara has been omitted by the copyist.

The second form is जंतो and जतो, plural जते, of which I have already given instances. It is from this form (Skr. भूत) that I derive था, and not from स्थित. The *u* of जता goes out in Gujarati हतो, हती, etc., in which language the form थतो, the legitimate descendant of स्थित, stands in its proper place as the preterite of a verb थवु from स्था, parallel to which is Oriya थिला, preterite of थिवा, side by side with हिला from हवा (भू). From the form हतो, by elision of त and coalition of the vowels (perhaps through a transitional form ह्यो), comes the ordinary Brijbhāṣha form हो, हो, etc., and by another process the form हतो became थो, *i. e. tho*, for *h'to*. The Hindi appears not to have retained any relics of the verb स्था, as a verb, though it has numerous nominal derivatives of it.

Chand has yet another form of the preterite जइ with short final *a*, not very uncommon in occurrence, as

सति करज सोच मम मंत्र मानि ॥

जइ राज काज वर चाडवान ॥

Grieve not, but heed my spell

Ruling has (ever) been the business of the doughty Chauhan.

III. 27. 26.

Connected with which is the conjunctive participle जइ, in

बीवाह जइ वर बन गयो ॥

The marriage having taken place, the bridegroom went to the forest. I. 170. 11.

The present tense contains no peculiarities. हौ 'I am' has been quoted, but I may mention that I have not yet come across the modern है "is." It seems to come from अस्ति, which is first split up into अमति, then the त is dropped leaving अमइ from which by change of स into ह and interpolating a second ह, we get Tulsi Das and Kabir's form अहहि, whence the transition is easy to हइ, *i. e.*, है. It does not appear quite certain that all this process had been as yet gone through in Chand's time, the cases where है occurs are



all explainable as futures like करिहै, जूझिहै "he will do," "he will fight," and the like. Thus is formed the future होइहै, contracted into हैहै, just as in the imperative होए 'let there be' becomes है.

• प्रलै होइहै तिन बंसह ॥

Destruction shall be on their race. III. 29. 6.

सब बोलि कह्यो है सिद्धि सिद्धि ॥

All speaking said, 'May there be success, success.' I. 178. 12.

Another form is होहि,

होहि जदवनि सपुनह ॥

The Jadavani shall be with child. I. 249. 6.

and the simpler form of the imperative is हो

जिन सुनत सुध भव हो तन्ननि ॥ (तन्ननि = तन्विनी)

Which bearing be thy nature purified, O lady. I. 14. 4.

In the substantive verb the vague crude form in short *i* occurs constantly, as a present and as future as well as in its more correct sense of a conjunctive participle. It is one of the commonest words and forms in Chand and more than one illustration must therefore be given.

There can be little doubt as to its future sense in the following ;—

दिवस पंच कै अंतरै । होइ सु दिखो पति ॥

In five days' time he shall be lord of Delhi. III. 11. 4.

Again a few lines later on

जोगनयर जोतिग कहै । प्रभु सु होइ प्रभु राव ॥

Of Jognagar (Delhi), saith the astrologer,

Shall be lord indeed Prithi Ráo (Prithiráj). *ib.* 13. 3-4.

And again—तुंअर ते चाहुवान ॥ अंत होइ तुरकानो ॥

After the Tuar the Chahuván, lastly shall be the Turk. *ib.* 26. 8.

All these three are prophecies, and there can be no doubt about the future sense, in which case we may regard this form as shortened from the fuller होइहै. Less distinct, and hovering round to a potential present are—

क्यों उधार होइ आप वर ॥

How *may* there be release from the curse for the hero. I. 58. 3.

करि सकों यच्च तो होइ हाम ॥

If I were to boast, then there might be laughter. I. 11. ult.

In the next quotation it must, I think, be regarded as distinct historical present—

कहै चंद गुन हंद पडि ॥

क्रोध उ दंगल मोइ ॥

चाहुवान चंदेल कुल ॥

कंदल उपजन होइ ॥ XXI. 1. 1-4.

Telleth Chand reciting a virtuous strophe,



That wrath and discord,  
(When twixt) Chahuván and Chandel tribes  
Strife *is* engendered.

So also in श्रवन सुनत होइ भंग ॥

The ear hearing it *is* broken. I. 159. 2.

होइ होनहार सीता हरन ॥

The rape of Sítá, (which was) predestined, *takes place.* III.  
27. 34.

In this latter case it may also be a preterite. Finally, as instances of its use in its more legitimate sense of a conjunctive participle,

होइ प्रसन्न सुकदेव कहि ॥

Being pleased saith Sukdev. I. 60. 10.

चैलोक जीति जिन जोर कीन ॥

तेउ गये अंत होइ आउ हीन ॥

They who swayed having conquered the three worlds,  
They too have gone at last, being without profit. III. 27.  
53, 54.

(आउ = आय)

Of the present participle there are two forms *हुवंत* and *होत*.

तुम बानी बानी प्रसन्न

हसन हुवंत निवारि ॥

Thy voice is a pleasing voice, laughing being prevented. I. 12. 4.

(i. e., no one can laugh at you.)

पुत्र होत भई मृत्य ॥

The son being born she died. I. 170. 3.

(i. e., she died in giving birth to the son.)

Of the future participle *होनहार* 'that which is to be,' destiny, an illustration has just been given. Others are—

तैं कहू होनहार पदचानिय ॥

Thou knowing somewhat of that which is to be. XXI. 92. 2.

And a few lines further on in a slightly different shape—

होनहार ऐसी लखी ॥

कही जु आरह उपाय ॥

Thus is written (as) about to be

The plan which Álhá has said. XXI. 94. 1, 2.

Want of leisure prevents me at present from continuing these studies. I hope at a future time to supplement these remarks on the leading features of Chand's style, by some further suggestions as to some of his more exceptional and unusual forms—many of which are puzzles of the most startling description. Perhaps the notes here given may be of use so far



as they go, and the copious quotations will illustrate many more points than those which they are specially intended for. To those who approach Chand fortified by previous reading of the mediæval Hindi poets, the majority of the forms given above will be already to a great extent familiar, but to those who approach him from the direction of Sanskrit and Prakrit studies, his style will be absolutely unintelligible without some such clue as that, the outlines of which I have sketched in these notes.

*Further note on coins from Kausambhi.—By THE HONORABLE  
E. C. BAYLEY, C. S. I., C. S.*

Since writing on the two coins sent by Bábu Sivaprasád from Kausambhi,\* I have had the advantage of showing the coins themselves to General Cunningham. He at once expressed his preference for reading the third letter of No. 2, as स *sa*, instead of ज *ja*. He said that he thought he had coins in his cabinet which would throw light on the matter.

He has since found two of which he kindly allows me to make use. One of these is the exact duplicate of coin No. 2, but has only the latter half of the inscription perfect. The other coin is in better preservation; its material is brass, and while it differs slightly in type, has the same legend as No. 2, but the third letter is unmistakably स. The whole of the letters on this coin are of a squarer type than those of my coin, so much so that the first letter might almost be read as ब, “*ba*,” if it were not for the clear shape of the letter on my coin.

The total legend must, however, now be read as—

उह सत मित, “*thaha sata mita*”

“The friend of the virtuous iconoclast”—

A reading which is a clear improvement on those previously suggested.

Both of General Cunningham's coins have the same reverse, a bull with the svastika over its hindquarters and standing in front of a Buddhist chaitya with Buddhist railing very clear, so that now there can hardly be any doubt of the Buddhist character of the legend. General Cunningham's best coin has the symbol on the left of the obverse somewhat different from my coin, but it is not quite distinct enough for satisfactory recognition. General Cunningham says that one of the coins at least was procured at Batesar, which is on the Jamuná, though at some distance above Kausambhi, from which place it may have possibly come.

\* \* Vide above, page 109.





# JOURNAL

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Part I.—HISTORY, LITERATURE, &c.

No. III.—1873.

*Authorities for the History of the Portuguese in India.*—By  
T. W. H. TOLBORT, B. C. S.

The History of the Portuguese in India is a subject of considerable interest, though the attention given to it, of late years, by English orientlists is scant. As a contribution to the subject I submit a list of the authors whose works are most valuable. The list does not profess to be exhaustive, but it will be found to embrace the most important sources of information.

I limit the range of these authorities to the period between 1498, when Vasco da Gama discovered India, and 1663, when the capture of Cochin by the Dutch finally broke the power of the Portuguese, and established the supremacy of others in the East. During that period, the adventures of the Portuguese form a chapter of Universal History. In years subsequent to 1663, the subject, though not devoid of incidents of gallantry and romance, dwindles to one of national rather than universal interest.

As an introduction to the subject must be read Mr. Major's interesting Life of Prince Henry the Navigator. This is founded chiefly on old Portuguese authorities, an account of whom is given in the preface; but Mr. Major's narrative is, to all appearance, so complete and accurate, that we may accept it, coupled with the well written summary by Barros, without consulting other authors.

For our present purpose, research must begin where the main thread of Mr. Major's work ends. Starting then from 1497, we have first—

Gaspar Correa. *Lendas da India*, 4 Vols., 4to. Correa is the oldest historian, and is by many considered the most reliable; but, strange to say, his





history, though written in or about 1561, lay in manuscript till a few years ago, when it was printed by the Lisbon Academy. The publication was commenced in 1858 and concluded in 1864. Correa came to India in or about 1512, and served as Albuquerque's amanuensis. His stay in India was not continuous, but it was at Goa that he ended his days.

His history comprises the period from Vasco da Gama's voyage in 1497 to the Government of Jorge Cabral in 1550. The earlier portion is partly founded on the manuscript (now lost) of Joao Figueira, a priest who accompanied Vasco da Gama. The bulk of the work from 1512 to 1550 has all the advantages of contemporary history by the pen of a truthful and intelligent writer. The work is illustrated with pictures of towns, and portraits of the Viceroys taken, I believe, from pen and ink sketches by Correa himself. Most of the towns are fairly represented, though without accuracy of detail. For instance Aden, Diu, and Colombo, as they appeared in the sixteenth century, can at once be identified by any one who has seen them as they are now. Correa has been termed the "Polybius" of Portuguese History in India. Selections from his work, comprising the three voyages of Vasco da Gama, have been translated and published in English by the Hon. H. Stanley.

João de Barros, the Livy of Portuguese History. His work, in four Decades, though somewhat later than the histories by Correa and Castanheda was, until the last few years, universally regarded as the standard authority on the subject. The recent publication of Correa's *Lendas* raises the question whether Correa or Barros should be followed where discrepancies exist (and in detail such discrepancies are numerous); upon the whole it seems likely that Barros will always hold his place in the opinion of his own countrymen as well as in that of foreigners as the chief of Portuguese Historians. His style is admired, and he gives an interesting sketch of the Portuguese discoveries prior to Vasco da Gama's voyage, a necessary introduction, which Correa and Castanheda omit. Barros died in 1570. He never visited India, but had special facilities for his study as an official in the India Office at Lisbon.

Diogo de Couto, the continuator of João de Barros. De Couto served in India, and though his portion of the History is not considered equal to that written by Barros, it is the best we have for the latter half of the sixteenth century. The fourth Decade by Barros comes down to the death of Nuno da Cunha in 1539, but as this Decade had not appeared when De Couto commenced his continuation, he began twelve years earlier, bringing the continuation down to 1600. The joint History of De Barros and De Couto consists of twenty-four 8vo. Vols., there being for the reason above stated a duplicate account of the twelve years comprised in the governments of Lopo Vaz de Sampayo and Nuno da Cunha.





**Castanheda.** This historian came to India in 1528, and the eight books of his History were published between 1551 and 1561. They bring the narrative of Portuguese conquest down to the first siege of Diu in 1538, covering nearly the same period as De Barros. Castanheda intended to publish ten books, but the last two seem to have been suppressed, because they reflected on some of the grandees who had influence at Court. I cannot, however, say for certain that the last two books of Castanheda were never published. My own copy omits them, but from a list kindly given to me by Senhor da Cunha Rivara, Secretary to the Portuguese Government at Goa, it would appear that Castanheda's history is brought down to 1550. Castanheda is said to have travelled all over Portuguese India, with the laudable desire of testing and correcting his history.

**Maffei**, *Historia Indicarum*, a Latin history, based I believe on Barros. It is in one volume comprising sixteen books. It ends with the death of King John the Third in 1557, and is dedicated to Philip the Second. The author was a Jesuit; and attached to his principal work are four books of *Epistolæ Indicæ*, selected letters from India, a very valuable appendix.

**San Romão**, a Benedictine monk, wrote a History of the same period in Spanish. I have not seen this work, but believe it is founded on Maffei and is inferior to the original.

**Faria y Sousa.** His History was published in both Portuguese and Spanish. It embraces a more extended period than any of the others, beginning with the early voyages of discovery, and ending in 1640, at the eve of the Revolution which restored Portuguese independence. An English translation from the Spanish was published in 1695, with a dedication to Catharine, Queen Dowager, Charles the Second's widow.

For the sixteenth century, Faria y Sousa is an inferior authority to the earlier writers, but he is the one generally quoted by English authors, because his account is the most complete as well as the most easily read. I am surprised that the Library of the Asiatic Society at Calcutta does not contain a copy of the translation. The copy of the original in the public library at Goa seems to be imperfect. Faria y Sousa gives a list of the books and manuscripts from which he collected his information.

**Lafitau**, "*Histoire des Découvertes des Portugais*," in French, 2 Vols. There is a copy in the public library at Pondicherry, but not, I think, in our own library at Calcutta. I have not read this work through, but from a cursory examination, it seems like most French Histories to be readable and interesting. Lafitau names the authors he has consulted, and brings his narrative down to the same time as Faria y Sousa.

The above authors are all professed historians, who treat their subject generally. But history is usually more indebted to particular accounts,





memoirs, and personal narratives than to prolonged chronicles which are necessarily themselves compilations. This is especially true of Portuguese History in India. Passing on then to this class of authors we find—

“*The Roteiro*,” the account of Vasco da Gama’s voyage, followed by Mr. Major in his *Life of Prince Henry*. I have not seen this, but it is evidently a work of authority.

The *Commentaries* of the great Albuquerque, compiled by his son from the official despatches sent by Albuquerque to King Manuel. They appeared in 1557.

The *Chronicle of King Manuel* himself by Damiao de Goes, published during the reign of King Sebastian, and dedicated to the Cardinal Prince Henry.

The *History of the Portuguese* during the reign of Emmanuel, by Osorio, Bishop of Sylves, in Latin. This, though based on the *Chronicle of Damiao de Goes*, is superior to it as a literary work. There is an English translation, published in 1752.

Antonio Galvan, a contemporary of the Governor Nuno da Cunha, is said by Faria y Sousa to have written much concerning India and particularly about the Spice Islands, but Faria y Sousa was unable to find any of his works except “the Book he calls of Discoveries, which is only short hints of things.” I presume this is the “*Tratado dos diversos e desvayrados caminhos, &c.*” If any other works by this author are extant, they will be very valuable. Crawford eulogizes the author in the following terms: “Of all the Portuguese names connected with the Indian Archipelago incomparably the greatest, except of Magellan, is that of the virtuous, the pious, the discreet, and heroic Antonio Galvan.” The failure of Faria y Sousa to find his manuscripts is no proof that they do not exist; for the instance of Correa’s great *History*, to say nothing of numerous other books, shows that in Portugal the most valuable manuscripts may lie hidden for centuries.

I here insert a note by the editors of Correa’s *History*, which details all the printed works prior to the date of that author.

“The printed Portuguese books regarding the History of India, of which Gaspar Correa might have had knowledge, although he may not have seen them all, still less possessed them, are,—the *Life of D. Joao II.*, by Garcia de Resende; Castanheda’s *History*; the three first *Decades of Joao de Barros*; the first book of the siege of Diu, by Lopo de Sousa Coutinho; the *Commentaries of Albuquerque*; the *Itinerary of Antonio Tenreiro*; the *Book of Antonio Galvao, Tratado dos diversos e desvayrados caminhos, &c.*; the *Relation of the Embassy of the Patriarch D. Joao Bermudes*; the *Chronicles of the King D. Manuel and of the Prince D. Joao* by Damiao de Goes; the treatise on the affairs of China by Fr. Gaspar da Cruz; the





commentary of the siege of Goa and Chaul, by Antonio de Castilho; and some other which we have forgotten."

The Life of D. Joao de Castro, by Jacinto Freire de Andrade. This work has passed through several editions and is considered one of the Portuguese classics. The second siege of Diu by the King of Gujarát occurred during the Viceroyalty of D. Joao de Castro, and the defence and relief of the fortress are deservedly regarded by the Portuguese as among the greatest of their achievements. The edition of the "Life" published in 1835 contains valuable notes with selections from Castro's correspondence, among these are letters regarding Persian histories of Alexander the Great, probably the "Sikandarnámah," for which D. Joao de Castro, who was a man of literary as well as military ability, had sent. There is a work by D. Joao de Castro himself, the "Roteiro," giving an account of his voyage up the Red Sea in 1540.

The Chronicle of King John the Third, by Andrade, is another work thought very highly of by the Portuguese themselves.

There must be frequent references to Indian affairs in the Chronicles and Histories of other Portuguese and Spanish Monarchs, but the reigns of Emmanuel and John the Third were the "golden age" of Portuguese rule in India. Those of Sebastian and Philip the Second may be considered the "silver age," and subsequent reigns down to the capture of Cochin "the age of brass."

SANTUS FRANCIS XAVIER was a contemporary of Don Joao de Castro; his life and work are so intimately connected with Portuguese India, that authorities regarding them may well be referred to here. Xavier's own letters are the best source of information regarding him. There is the old Latin edition of Tursellinus, and a modern French one by Léon Pagès. Of professed biographies, the most authentic is that in Portuguese by Lucena, and the most popular that in French by Bohours. Three recent biographies should also be consulted. First that by Venn, written from the Protestant standpoint. Second, a volume of Xavier's life and letters, published last year, 1872, by the Rev. H. J. Coleridge, an English Jesuit. (The second volume has not yet appeared.) Third, a Life of the Saint published at Goa in 1861, by Senhor Felippe Neri Xavier, Director of the National Press. This contains much miscellaneous information regarding Xavier and his tomb.

As Xavier is the Saint of Portuguese India, so is CAMOENS its Poet. The *Lusiad* is an authority in Portuguese History just as Shakespeare is for our own Plantagenets. National pride and patriotism pervade it, and great events which would be smothered in a mere chronicle of facts are brought by it prominently and picturesquely to view. There are many well known lives of Camoens, and many editions of the *Lusiad* in all European languages. The Portuguese (I believe) regard the edition of the





*Lusiad* by D. José Maria de Souza Botelho with most favour. In English, Adamson's *Life of Camoens*, and Mickle's translation of the *Lusiad* are best known.

There is another Portuguese epic "*Malaca conquistada*," of which Albuquerque is the hero, but this has never attained general celebrity.

The *Chronicle of Luis de Ataíde*, by Antonio Pereira. I have not seen this work, but it is quoted both by Faria y Sousa and by Lafitau. Luis de Ataíde was twice Viceroy of India, in 1567, and again in 1578. •

Diogo de Couto, the continuator of Barros, was a voluminous writer, and during his prolonged connection with Indian affairs (from 1556 to 1616) wrote many minor works besides his *History*. Among these are numerous orations to the incoming Viceroys. Also a *Life of D. Paul de Lima*, a celebrated Portuguese Captain, who died about 1589, and an interesting treatise called the "*Soldado Pratico*." I have not seen any of these works, but Mr. Stanley in the introduction to his "*Three voyages of Vasco da Gama*" gives an abstract of the "*Soldado Pratico*," which is a critique on the numerous defects of the Portuguese administration in India.

✓The Portuguese Missions to Akbar from 1582 to 1605 constitute one of the most interesting chapters in the *History of Portuguese India*. The account usually quoted is that by M. M a n o u c h i, who was for many years Aurangzeb's physician. I have not seen his *History*, but it appears to have been published as a separate work. According to Hough, who devotes a chapter to these Missions, there are valuable manuscript accounts in the British Museum, some it seems in the original handwriting of the Missionaries. There are also narratives of the Mission in Murray's *Asiatic Discoveries*. There is an Italian account of Akbar and of the Jesuit Mission by Peruschi.

The close of the sixteenth century is remarkable in the annals of Portuguese India for the attempt to reconcile the heretical Syrian Church of Travancor to Rome. The chief authorities for this episode are Gouvea's *Jornada do Arcebispo de Goa*, D. Fr. Aleixo de Meneses as *Terras do Malabar*; Geddes, *History of the Church of Malabar*; La Croze, *Histoire du Christianisme des Indes*; Hough's *Christianity in India*; Lee's *History of the Syrian Church*, in one of the Church Missionary Society's Reports; Howard's *Christians of Saint Thomas*; Day's *Cochin*.

There are several other accounts, but the above contain all that is important. Day's *Cochin* is a valuable work generally, as Cochin was the most important Portuguese settlement in continental India next to Goa, and everything connected with it has some bearing on our subject.

While we are on the ground of ecclesiastical history, the following works may be named as in some way connected with Portuguese India, where formerly the predominance of ecclesiastical influence was so marked.



The "India Orientalis Christiana" by Paulinus Bartholomaeus, said to be a work of great merit but very rare.

Francisco Sousa's "Oriente conquistado a Jesu Christo pelos padres da companhia de Jesus." This work was published in the beginning of the eighteenth century. It seems to be regarded by later Portuguese writers as an authority for secular as well as ecclesiastical history, and is, I presume, the work referred to in Cottinean's Sketch of Goa, page 21.

Bartoli's Asia. This, I believe, is the standard Jesuit authority, but there are numerous other histories of the Jesuits.

Historia das Inquisiçoes, published at Lisbon in 1821.

Historia da origem e estabelecimento da Inquisiçao em Portugal, by Herculano.

I have not seen the above works but the following which also have some bearing on the subject are to be found in the Public Library at Goa—

Tellez, Chronica da companhia de Jesus.

Luis de Sousa, History of the Dominicans.

Damian Cornejo, Chronica seraphica, or History of the Franciscans.

Pedro Monteiro, History of the Inquisition.

It may be observed that the Goa Library is chiefly composed of books which were taken from various convents when the monastic orders were suppressed. No doubt, it contains many other books of historical interest, which a hurried visit did not give me time to discover.

Faria y Sousa refers to a manuscript ecclesiastical History, called "The Spiritual Conquest in Asia," written by F. Paul of the Trinity, a Franciscan, in the year 1630. Probably this has since been printed.

For the seventeenth century printed authorities are rare. Faria y Sousa refers to a manuscript by Antonio Bocarro, apparently a continuation of De Couto, and also to accounts of Nuno Alvarez Botello and the Count de Linhares (1629 to 1635), the former in print, and the latter in manuscript. I suppose, it was the same Antonio Bocarro who wrote the description of the Fortresses of India, extracts from which have been published by Sr. da Cunha Rivara in the "Tissuary."

Mr. Stanley gives a summary of a manuscript found by him in the Library of Lisbon, entitled "History of the Elevation and Decadence of the Portuguese Empire in Asia," which gives some account of the seventeenth century.

Between 1640, the date at which Faria y Sousa closes his History (also the year in which Portugal recovered her independence), and 1663, the year in which Cochin was taken by the Dutch, there seems to be almost a blank so far as printed Portuguese authorities are concerned, but the deficiency is made good by an increased number of Dutch and French writers. The



ecclesiastical history of these few years is carried on by a Carmelite missionary, Vincenzo Maria, in his *Viaggio all' Indie Orientali*.

The expeditions, military and ecclesiastical, to Abyssinia; the rise and fall of Christianity in Japan; the rivalry with the Spaniards and Dutch in the Malay Archipelago; and the wars in Ceylon, may fairly be treated as episodes in the History of Portuguese India.

Regarding Abyssinia, the chief authorities are:

Francisco Alvares, *Terras do Preste Joao.* •

Tellez, *Historia de Ethiopia.*

João dos Santos, *Ethiopia oriental.*

Geddes, *Church History in Ethiopia*; La Crosse, *Christianisme d'Ethiopie*; Ludolf's *Historia Æthiopica.*

Regarding Japan,—Kämpfer's well known book is generally accepted as the best authority.

There is a work in Spanish "*Christiandad del Japon*," by Sicardo, of which there are copies in the public library at Goa. There are also collections of "*Epistolæ Japonicæ*," as of "*Epistolæ Indicæ*." The Rev. H. J. Coleridge states that M. Léon Pagès is about to publish a work on the subject.

The Chinese mission, though organised from Macao, was not so connected with politics as the Japan mission, and the early missionaries were mostly Italians not Portuguese. There is a description of China by Faria y Sousa, founded on the *Memoirs of Semedo*, and there is a separate account of the commencement of the mission under Ricci. There is also the great work of Du Halde.

Regarding the Malay Archipelago, most English accounts of the islands give a sketch of the early Portuguese rule. Crawford's works, and St. John's *Indian Archipelago* may be cited as the most useful. Raffles' *Java* scarcely refers to the Portuguese, but his *Life and Journal* gives a native account of the arrival of the Portuguese at Malacca. I have not yet had an opportunity of referring to Marsden's *Sumatra*. Faria y Sousa, besides his reference to Antonio Galvan, mentions Bartholomew de Argensola as an authority, though an unsafe one, for the *History of the Spice Islands*. I have a French translation of Argensola entitled "*Conquête des Îles Moluques par les Espagnols, par les Portugais, et par les Hollandais*." The third volume containing the conquest by the Dutch is a continuation of the original work. There is also an English translation of Argensola. There is another account of the Moluccas, by Gabriel Rebello, in the sixth volume of the "*Noticias para a Historia e Geografia das nações ultramarinas*."

Regarding Ceylon, our information may be considered abundant and satisfactory. Sir Emerson Tennent devotes the first two chapters of his second volume to the Portuguese and Dutch rule, and refers to two Portu-

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guese authorities who treat specially of Ceylon,—Ribeiro, and Rodrigues de Saa. The latter wrote an account of the expedition of 1630, in which his father was killed. There is also a Portuguese account of the siege of Colombo, translated and attached to Baldæus' narrative in Churchill's voyages. Baldæus himself, a Dutch writer, is the best authority for the final struggle between the Dutch and Portuguese, giving a sketch of the negotiations and military movements, with details of the sieges of Colombo and Cochin and engravings of the different forts and towns. Ribeiro's History is contained in the fifth volume of the "Noticias para a Historia e Geografia das nacoes ultramarinas." There is a French translation by LeGrand and an English translation, now rare, by Lee. Sir Emerson Tennent mentions Johann Jacob Saars, as giving in German an account of the campaign in which Colombo was captured. Wouter Schouten's "Oostindische Voyagie" is another narrative of the same period.

The above list does not include many "Travels," although the most vivid and faithful pictures of Portuguese India in the 16th and 17th centuries are to be found in the narratives of European travellers. The number of these is so great, that we can only specify a few, referring enquirers to the standard collections of voyages for further details. These collections are well known,—Ramusio, Purchas, Hakluyt, De Bry, Le Brun, Hulsius, Recueil des Voyages de la Compagnie des Indes Orientales des Pays-bas, La Harpe, Dampier, Harris, Pinkerton, Thevenot, Churchill, Astley, Lockman, Korr, Murray, and others. There are two or three Italian collections of value besides Ramusio, and there are some Indian voyages in the Portuguese "Noticias."

Among individual Travels the most noteworthy, either for their intrinsic value, or for their bearing on our present subject, are—

Odoardo Barbosa. The earliest description of India after Portuguese discovery.

The voyage of Magellan, which first took the Spaniards to the East.

The voyage of Sir Francis Drake, the first appearance of the "Heretics" in those seas.

The "Peregrinações" of Mendez Pinto.

Linschoten's Itinerarium.

Travels of Pyrard de Laval (1601 to 1611). The original is in French, but there is a Portuguese translation, published at Goa by Senhor Rivara. Pyrard de Laval's book is of special value as he resided at Goa when the prosperity of that city was at its height; for although the glory of Portuguese India had begun to diminish some years earlier, the splendour of Goa as a city, was greatest during the first few years of the seventeenth century. Pyrard's description is detailed and interesting.

Dellon's narrative of the Inquisition of Goa. The original was pub-



lished in French in 1687, but there is a Portuguese translation, published at Goa in 1866 under the auspices of Sr. Rivara. This translation contains some valuable notes, and adds as an appendix the account of the Inquisition given by Dr. Claudius Buchanan in 1808 in the *Christian Researches*.

A narrative of the expedition against Ormus, when the Persians and English united to expel the Portuguese in 1622. This is contained in the collections by Purchas and Kerr.

Baldæus, the Dutch historian of the final struggle between Hollanders and Portuguese. The translation of his *Travels* is in Churchill's Collection.

Tavernier gives a description of Goa, a narrative of the persecution in Japan, a sketch of Dutch history in the East, and an account of the capture of Cochin. Altogether, Tavernier is a very valuable writer for our present purpose, as his information refers precisely to the period when Portuguese supremacy in India was disappearing.

There are numerous travellers a little later than Tavernier, whose narratives contain frequent references to the Portuguese. Among these may be named Bernier, Nieuhoff, Carreri, Fryer, and Hamilton.

Lastly, there is a modern account of Goa, written in English by the Rev. Cottenean de Kloguen and published at Madras in 1831. This contains a complete historical sketch of Goa from 1509 down to 1812, and gives a description of all the churches, convents, and other public buildings, accompanied by a map. It is, in fact, a modern guide to Goa. There is a Portuguese translation, which I have not seen. Probably the notes of the translation are of value, as it was published in Goa itself at a comparatively recent date (1858).

There is another modern account of the Portuguese possessions in Asia, by Gonçalo de Magalhaes Teixeira Pinto, also published at Goa with notes by Sr. Rivara. It is a mere pamphlet, but it contains some official documents regarding the transfer of Bombay to the English.

As the Dutch were for sixty years the rivals of the Portuguese in Asia, it is reasonable to suppose that voluminous information may be collected from Dutch authorities. Besides the early Dutch voyages, and the travels of Baldæus already referred to, there is the great work of Valentyn, '*Oud en Nieuw Oost Indien*.' Tennent refers frequently to this work. There is one copy in our own library at Calcutta, and there is another, wanting the first volume, at Madras. No doubt, a student acquainted with Dutch would find the works of numerous other authors at Batavia and Amsterdam.

It remains to notice official records and periodicals. I believe there are now few records of value at Goa. All that survived have been transferred to Lisbon, and are to be found there in the Torre do Tombo and other collections of Archives. But a very valuable work has been published at Goa





by Sr. da Cunha Rivara from the records of the 16th century. This work the "Arquivo Portuguez oriental" is in five fasciuli, comprising altogether eight volumes. Of these, fasciculus No. 1 is out of print, the remaining seven volumes may be obtained from the Imprensa Nacional at Goa. The contents of the eight vols. are as follows :

Fasciculus 1, letters from the Kings of Portugal to the City of Goa.

Do. 2. Book of the privileges of the City of Goa.

Do. 3 (2 parts or vols). Letters and instructions from the Kings of Portugal to the Viceroys and Governors of India, and also charters and ordinances of the Kings and Viceroys.

Do. 4. The Ecclesiastical Councils held at Goa and the Synod of Diampar.

Do. 5. (3 parts). Various documents of the 16th century. Among these are important regulations regarding the administration of justice, the management of the Goa hospital, military and commercial matters. The references to the contemporary history of Muhammadan India are not very many. There are, however, some diplomatic documents referring to Bijápúr.

In the preface to his third fasciculus, Sr. da Cunha Rivara discusses an interesting question regarding some of the 16th century records. During the 16th and 17th centuries, the intercourse between India and Portugal was chiefly carried on by annual fleets to and fro, and the annual letters that they carried. As the arrival and despatch of the fleets were regulated by the monsoons, the registers containing copies of official letters were known as the 'Livros das Monções,' 'Books of the Monsoons.' At the time Sr. Rivara wrote his preface, the record rooms at Goa appear to have contained fragments of the "Livros" for the years 1568 and 1583, then a series from 1584 to about the end of the century, and then (after a gap of fifty years) a continuous series from 1651 to modern times. It was long believed that the absence of the "Livros" earlier than 1568 had been caused by the Marquis de Pombal, under whose orders sixty volumes of the series were despatched to Portugal in 1777. Sr. Rivara, however, proves that the sixty volumes so despatched, were those between 1606 and 1651, and that *they* at least are safely housed in the Torre do Tombo at Lisbon. About the same time, and in obedience to the same order all the ecclesiastical records of an early date were also sent to Lisbon, but these, it seems, have been lost sight of.

I believe I am right in adding that the remaining "Livros das Monções" have been recently transmitted to Lisbon, since the publication of Sr. Rivara's Arquivo. Possibly some of the missing records are to be found in our own British Museum; for Sir Emerson Tennent in the introduction to his "Ceylon" writes—"Within the last few years, the Trustees of the British





Museum purchased from the library of the late Lord Stuart de Rothesay the diplomatic correspondence and papers of Sebastiao Jozé Carvalho e Mello (Portuguese Ambassador at London and Vienna, and subsequently known as the Marquis de Pombal) from 1738 to 1747, including sixty volumes relating to the history of the Portuguese possessions in India and Brazil during the 16th, 17th and 18th centuries. Amongst the latter are forty volumes of despatches relative to India entitled *Collecção Authentica de todas as Leys, Regimentos, Alvarás e mais ordens que se expediram para a India, desde o estabelecimento destas conquistas. Ordenada por proviram de 28 de Marco de 1754.* Mss. Brit. Mus., Nos. 20,861 to 20,900."

The "Arquivo" is so far defective that it only gives the outward despatches and letters from Lisbon to Goa together with other documents issued in India. It does not give despatches from Goa to Lisbon, which would be of yet greater value to the student of Indian History. I cannot gather from Sr. Rivara's preface to the third fasciculus where these are, nor does he expressly state that the early "Livros das Monções" are lost beyond recovery. Perhaps the introduction to his first fasciculus, which I have not been able to obtain, throws some light on these points. This much is certain. The Torre do Tombo and other libraries at Lisbon contain a number of valuable records of both the 16th and the 17th century, though it would seem from the preface to "Gaspar Correa" that they are not valued as they deserve to be. I must add that Sr. Rivara's "Arquivo," though *richer* towards the end, contains a great many documents belonging to the early part of the 16th century. The early "Livros das Monções" have been lost, but there were other early records which Sr. Rivara by publication has saved from a similar fate.

Many articles of historical and antiquarian value have been published in the "Boletim do Governo," the "Government Gazette" of Portuguese India. Among those of recent numbers may be enumerated the "Capitulos de um livro inedito," containing information as to ecclesiastical matters in the 17th century, and a series of Treaties of the same period. Many similar articles are scattered through back numbers of the Boletim, including, I believe, an account of the records by Sr. Felipe Neri Xavier. I hope Sr. Rivara, under whose auspices the majority have been published, will collect and republish these papers in a separate form. It is much to have saved ancient records from destruction, but the service to History will be enhanced by republication. Papers are not readily accessible when scattered through the old files of a Gazette.

I may mention here that Sr. Rivara in addition to the numerous publications above referred to, is the author or editor of several other important works more or less connected with our present subject; among these an historical essay on the Concan, or dialect, of Goa; a dictionary and grammar of the same;



a publication regarding village communities; and several regarding the ecclesiastical rights of the Crown of Portugal and the Archbishop of Goa—vexed questions among the Roman Catholics of India.

Two facts regarding other records may be added from Day's Cochin.

1. The Dutch Government records of Cochin are, it seems, still there, and apparently the early volumes refer to the capture, or to the period immediately following the capture, from the Portuguese (page 121).

2. The records of the Verapoly Monastery were lost in the river, as the priests were endeavouring to carry them away from Tippu's troops in 1790 (Chronology at end of book).

So far I have only referred to European accounts of Portuguese India, but what Indian authors are there on the subject? Hindús, who care so little for history, are not likely to give us much help, but it is different with Muhammadans. They are given to chronicle writing, and we may fairly expect some account of the Portuguese from them. As yet, however, I have not found any special Muhammadan history on the subject, except the "*Tuhfat ul Mujáhidín*." This is a valuable work, as it describes the wars of the Portuguese and Muhammadans between 1498 and 1583, from a Muhammadan point of view. There is an English translation, No. 30, in the series of the Oriental Translation Committee.

Firishtah must be consulted, because his histories of the Dakhin States are so full, and refer specially to the period when the Portuguese power was at its height. The eleventh chapter, on the Muhammadans in Malabar, is founded on the *Tuhfat ul Mujáhidín*. Besides this, Briggs gives in an appendix an epitome of the wars of the Portuguese in India. But Firishtah's allusions to the Portuguese, except in the eleventh chapter, are very meagre. He gives a brief account of the death of King Bahádur, and of the siege of Chaul by Burhán Nizám Sháh in 1592, but he does not even mention the great siege of Díú. Still the constant references to the Muhammadan kings by Portuguese historians, and the constant intercourse that must have gone on between the Orientals and the European invaders, render it necessary to consult Firishtah.

Next to Firishtah may be mentioned the *Mir-át i Ahmadí*, with its translation by Bird, and the *Mir-át i Sikandari*, on which the *Mir-át i Ahmadí* was founded.

Firishtah's History of Bijápúr was prematurely closed in 1596, while we seek for information down to 1663. The following supplementary histories of the Dakhin states and particularly of Bijápúr, the one that had most dealings with Goa, are described in Mr. Morley's list of the historical manuscripts preserved in the Library of the Royal Asiatic Society.

*Tazkirah i Ahwál i Saláṭin i Bijápúr*, composed in 1806 from two earlier histories of the 'Adil Sháhi dynasty. Morley describes this work as concise, but valuable.





Basátin us Salátin. This is also a modern manuscript (1824), but the preface enumerates the authorities from which it was compiled.

Muntakhab i Tawárikh i Bahrí, containing a history of the Nizámsháhí dynasty.

Tárikh i Sultán Muhammad Qutbsháhí, a history of the Qutbsháhí dynasty of Golkonda; an abridgement of this is also given in Brigg's *Firishtah*. Mr. Bird in his account of Bijápúr refers to another history the "Tárikh i Haft kursí" and also to the "Tárikh i Asad Khání," which he appears to consider as the same work under a different name. He says that the "Tárikh i Haft kursí" was written in the reign of 'Alí 'Ádil Sháh II. (1656 to 1672).

I have not seen any of these manuscript histories of the Dakhin states, but mention them as to some extent bearing on the subject. The names given by Portuguese authors are frequently unintelligible until compared with Persian accounts. But it is not likely that any of these histories give more than casual allusions to the Portuguese.

Passing from the Dakhin to the Mughul histories—

The *Tabaqat i Akbarí* contains a few references to the Portuguese, including an account of King Bahádur's death. It refers also to the construction of the Súrat fort against the depredations of the Portuguese.

The *Akbarnámah* refers to King Bahádur's death, and gives some account of the Jesuit missions at Akbar's court. Probably it contains other references to the Portuguese, but I have not yet examined the *Akbarnámah*. I hope Mr. Blochmann, who is so well acquainted with the Persian histories of this period, will add some further account of these references. The *Inshá i Abulfazl* contains a letter from Akbar, a translation of which is given by Hough in his second volume, page 261. This is said to have been intended for the King of Portugal, but the address in my copy of the *Inshá* is "Dánáyán i Farang," as though intended for the Jesuits.

The *Muntakhab ul-tawárikh* of Badáoní also refers to Díú and to the Jesuit missions at Akbar's court. Mr. Blochmann's extracts, attached in a note to the 77th *Aín*, read with the Jesuit account, give a vivid picture of Akbar and his court.

The *Dabistán* contains an account of the Christian religion derived from the Portuguese priests, and gives a sample of the discussions before Akbar.

The *Tuzuk i Jahángirí* alludes in several places to Muqarrab Khán and to Súrat affairs. One passage appears to refer to the attack by Azevedo on Downton's ships in 1614. Elsewhere the *Tuzuk* refers to presents from the Portuguese and to some Portuguese in Jahángir's employ.

The *Pádisháhnámah*, page 433, Vol. I, gives a detailed account of the siege and capture of Húglí. Farther on, this is again referred to in letters to Nazr Muhammad Khán, the ruler of Balkh, and to the Sháh of Persia. At





page 534, the fate of the captives is described. In the second volume, there is an account of the Portuguese at Chittagong.

Kháfí Khán, the most useful of the Muhammadan historians after Firishtah,\* also gives an account of the siege of Húglí, prefixing to it an interesting description of the Portuguese from his point of view. A fuller description is found in the second volume, page 400, reign of 'Alamgír.

Mr. Blochmann, to whom I am indebted for several of the above references, tells me that the Portuguese are frequently mentioned in the *Maásir ul Umará*, a work containing biographies of the great men of the Mughul empire, and that there are occasional bigoted allusions to them in the *Farhang i Rashidí*, a Persian dictionary written in 1653.

A certain amount of information is scattered through different periodicals. No. 3 of the *Calcutta Review* contains an article on the Jesuit missions; No. 10, the Portuguese in North India; No. 51, the Shiry Family; No. 57, the Inquisition at Goa; No. 77, the Life of Xavier; Nos. 102 and 103, Topography of the Mogul Empire; No. 105, the Feringhees of Chittagong.

The Asiatic Researches contain articles on Malabar; The Syrian Christians; Nobili's imitation of the Veda; and Bijápúr.

The Bengal Asiatic Society's Journal is singularly deficient in articles bearing on our subject. The volume for 1841 mentions the Portuguese in connection with Arakan. That for 1843 contains an interesting account of Abyssinia, and the Portuguese missions there, and the volume for 1844 contains an article called "Political events in the Carnatic from 1564 to 1687," which may be considered to have a distant connection with the contemporary history of Portuguese India. There is also a modern account of Socotra, but so far as I have seen, there is not a single article devoted specially to Portuguese Asia.

The Journal of the Royal Asiatic Society is as deficient as our own in this respect. I cannot find a single article specially devoted to Portuguese India, but the following appear to have a distant bearing on the subject; Vol. II, Transactions, Diplomatic relations between the courts of Delhi and Constantinople, in the 16 and 17 centuries. Vols. I and II, Journal, Memoir on the Syrian Christians; Vol. II, Sea ports on the coast of Malabar; Vol. V, (or VI,?) account of the Sherley family; Vol. VII, Tribes of the Northern Concan; Vol. V (new series), on Malabar, &c.

The last series of the "Journal Asiatique" gives no help. I have not seen the earlier series. We might expect more assistance from Bombay, as that Presidency has been always intimately connected with Portuguese India. But so far as I have ascertained, there is not much.\* Vol. II of the Bombay Literary Transactions contains a Turkish account of a naval expedition in the sixteenth century with references to the Portuguese. I have not seen Vol. III., but I believe it contains a description of Bijápúr, and



possibly some other articles connected with the subject. I believe there are some articles in the Journal of the Bombay Geographical Society. The Journal of the Bombay Asiatic Society contains (1841) Translations from De Couto; (1844) Bird's description of Bijápúr; (1849) Maráthi works composed by the Portuguese; (1868) Translations of Portuguese Inscriptions found at Bombay.

The Bombay Quarterly Review, vol. 4, contains an interesting article by the late Mr. Anderson regarding the capture of Bassein and other Portuguese forts between Bombay and Daman by the Maráthas. This, however, was in the eighteenth century, and our present review does not extend to a later date than 1663.

Doubtless there are numerous articles scattered through the Journals and Proceedings of the various Societies at Madras, Singapore, Batavia, Amsterdam, and Lisbon, but these I have not yet examined.

More valuable than most of the above, for our present purpose, is the "Chronista de Tissuary," a periodical which appeared at Goa under the editorship of Sr. Rivara, between 1866 and 1869. Every article in this is of value, though many refer to a period in the history of Portuguese India later than that under review. It contains among other papers an account of transactions with 'Adil Sháh, treaties of peace with Jahángír and Sháh Jahán, descriptions of the Portuguese fortresses as they were in 1634, and notes of the inscriptions existing at the present day. Copies of the inscriptions with which the fortress of Díú is covered, have been published by Sr. Rivara in a separate pamphlet.

The "Gabinete Litterario das Fontainhas" appears to have been a similar periodical of earlier date. This statement, however, is subject to correction, as I have not seen the "Gabinete Litterario."

The above summary of authorities regarding Portuguese India has been prepared, partly from a list given me by Sr. Rivara, partly from Faria y Sousa, and partly from other books in my possession. Sr. Rivara who is a member of the Bombay Asiatic Society, will be able to enlarge the list and to correct any details that may be faulty where Portuguese authors are referred to. I hope he will do me this favour, and if Mr. Blochmann will kindly render the same service where Muhammadan authors are quoted, or where other information may be available in the Society's Library, it will be a great assistance to students interested in the subject.



*N* Contributions to the Geography and History of Bengal (Muhammadan Period).—PART I., *Geographical*.—PART II., *Historical, based on Inscriptions received from GENERAL A. CUNNINGHAM, C. S. I., DR. J. WISE, E. V. WESTMACOTT, ESQ., W. L. HEELEY, ESQ., WALTER M. BOURKE, ESQ., &C., and on unpublished coins, with notes by E. V. WESTMACOTT, ESQ., and DR. J. WISE.*—By H. BLOCHMANN, M. A., *Calcutta Madrasah.*

In the end of last year, General Cunningham, Director of the Archaeological Survey of India, forwarded to the Asiatic Society, for publication in the Journal, a unique collection of rubbings of Muhammadan inscriptions from Bengal and various places up-country, and in the Proceedings of our Society for January last, I gave an account of the importance of these rubbings with reference to the history of Bengal. Dr. J. Wise of Dacca, Mr. Walter Bourke, Mr. E. V. Westmacott, C. S., and Mr. W. L. Heeley, C. S., have also favoured the Society with valuable rubbings and notes on the localities where they were obtained, and I shall delay no longer to carry out the wishes of the donors and publish my readings with a few notes suggested by the subject. I have also examined our coin cabinet, which I found to contain some unpublished Bengal coins of great value.

The importance of mural and medallie evidence for Bengal History arises from the paucity and meagreness of written sources. Whilst for the history of the Dihlí Empire we possess general and special histories, often the work of contemporaneous writers, we have only secondary sources and incidental remarks for the early Muhammadan period of Bengal, *i. e.*, from A. D., 1203 to 1538. Nizámuddin Ahmad, who served Akbar as Bakhshí, the friend and protector of the historian Badáoní, is the first writer that gives in his Ṭabaqát i Akbarí, which were completed in 1590, a short connected account of the independent kings of Bengal from 1338 to 1538. For the time between 1203 and 1338, we depend on incidental remarks made by Dihlí writers, as Minháj i Siráj, Baraní, and 'Afif. Firishtah, who flourished in the beginning of the 17th century, has a chapter on the same period as Nizám; but though he gives a little more, it seems that he used the same, at present unknown, source as the author of the Ṭabaqát i Akbarí. But there can be no doubt that this source was a work defective in chronology and meagre in details. Firishtah also cites a historical compilation by one Háji Muhammad of Qandahár, of which no copy is at present known to exist.

The latest writer on Bengal History is Ghulam Husain of Zaidpúr, poetically styled 'Salim,' who composed his Riyázussalátín, or 'the Gardens of Kings,' at the request of Mr. George Udney of Máldah. This work, the



title of which contains in the numerical value of the letters the date of its completion (A. H. 1202, or A. D. 1787-88), is rare, but is much prized as being the fullest account in Persian of the Muhammadan History of Bengal, which the author brings down to his own time. From a comparison of his work with that by Firishtah, it is evident that for the early portion he has used books which are likewise unknown at present, and it is unfortunate that his preface gives no information on this point.\* His additional source, it is true, cannot have been a work of considerable size; yet he gives valuable dates which, as will be seen below, are often confirmed by collateral evidence. Salim has also made a fair use of the antiquities of the Gaur District. Stewart, who used the Riyáz as the basis of his History of Bengal, has given a translation of the greater part of the work; but from a leaning to Firishtah he has left out useful passages, which will be found below.

A commentary on Inscriptions necessarily contains references to the history and the geography of the country; but in order not to overload the subject with unconnected remarks, I have, in the following, separated the geographical from the historical portion, and have thus found means to collect, in a convenient way, numerous stray notes which for several years have been accumulating in the course of my historical studies.

\* When quoting this unknown source, Salim uses phrases as '*dar risálah e dídah-am*,' 'I have seen in some pamphlet,' or '*ba-qaule*,' 'according to another statement,' &c.

The Asiatic Society Library has one MS. of the *Riyázussalátn* (No. 526), written in bold *shikastah*, 277 pages, 8vo., 15 lines per page, copied in 1851 at Hajipur by one Sadruddin Ahmad. Beginning—*Jahán jahán hamd sazawár i bárgáh i jahán-áfarine ast, kih in mazáhir i kauní-rá ba-yad i qudrat i kámilah i khwésh ba-hilyah i wujud muhalla sákhtah*, &c. The work consists of a Preface in four parts, and four Chapters, of which the last contains two parts. The end contains the following description of the character of the "new rulers"—

"The English among the Christians are adorned with the head-dress of wisdom and skill, and ornamented with the garb of generosity and good manners. In resolution, activity in war, and in festivities, in administering justice and helping the oppressed, they are unrivalled; and their truthfulness is so great, that they would not break a promise, should they even lose their lives. They admit no liar to their society, are pious, faithful, pitiful, and honorable. They have neither learnt the letters of deceit, nor have they read the page of vice; and though their religion is opposed to ours, they do not interfere with the religion, rites, and propagation of the Muhammadan faith.

گفتگوی کفر و دین آخر بیکجا می کشد خواب یک خواب است باشد مختلف تعبیرها

All wrangling about faith and heresy leads to the same place: the dream is one and the same dream, though the interpretations may differ."



## PART I.—GEOGRAPHICAL.

Before the conquest of Bengal by the Muhammadans under Bakhtyár Khiljí in A. D. 1203, Bengal is said to have been divided into five districts—(1) Ráḍha, the country west of the Húglí and south of the Ganges; (2) B a g ḍ i, the delta of the Ganges; (3) B a n g a, the country to the east of, and beyond, the delta; (4) B a r e n d r a, the country to the north of the Padma (Podḍa) and between the Karatayá and the Mahánandá rivers; and (5) Mithilá, the country west of the Mahánandá. We do not know whether these names refer to revenue districts, or merely indicate (as they now do) popular divisions based upon the course of principal rivers; but as the different orders of Bráhmans and Káyasths take their distinctive names from these divisions, it may be assumed that they existed or were recognized at the time of Ballála Sen, who classified the two castes.

The ease with which Bakhtyár Khiljí took possession of Bengal by his surprise of Nadiyá,\* the then capital, stands unparalleled in history, unless we compare it with the almost peaceful transfer of the same country, five hundred and fifty-five years later, from the Muhammadans to the East India Company. But it would be wrong to believe that Bakhtyár Khiljí conquered the whole of Bengal: he merely took possession of the south-eastern parts of Mithilá, Barendra, the northern portions of Ráḍha, and the north-western tracts of Bagḍi. This conquered territory received from its capital the name of Lak'hnautí, and its extent is described by the author of the *Ṭabaqát i Náqirí*, who says that the country of Lak'hnautí lies to both sides of the Ganges and consists of two wings: the eastern one is called Barendra, to which Deokot belongs; and the western has the name of Rál [*i. e.*, Ráḍha], to which Lak'hnúr belongs. Hence the same writer also distinguishes† Lak'hnautí-Deokot from Lak'hnautí-Lak'hnúr. From the town of Lak'hnautí to Deokot on the one side, and from Lak'hnautí to the door of Lak'hnúr, on the other side, an embanked road (*pul*) passes, ten days' march. Distinct from the country of Lak'hnautí is Banga (*diyár i Bang*, Bangadesh, *Ṭabaqát*, p. 267), and in this part of Bengal the descendants of the Lak'hmaniyah kings of Nadiyá still reigned in A. H. 658, or 1260, A. D., when Minháj i Siráj, the author of the *Ṭabaqát*, wrote his history.‡ Deokot, which still gives name to a large parganah, was correctly identified by Buchanan with the old fort near Damdamá, on the left bank of the Purná-

\* Lak'hman Sen, the last king of Bengal, though called king, cannot have been much more than the principal zamíndár of his time. "He was a liberal man," says the author of the *Ṭabaqát*, "and never gave less than a lak'h of cowries, when he made a present—may God lessen his punishment in hell!"

† *Ṭabaqát*, pp. 162, 242.

‡ *Ṭabaqát Náqirí*, p. 151. Thus an expedition against Banga by the governor of Lak'hnautí is mentioned in 657. *Ṭabaqát Náqirí*, p. 267.



bhaba, south of Dinájpúr. Close to it lies Gangarámpúr with its ruins, and the oldest Muhammadan inscription known in Bengal.\* Lak'hnúr,† the town or 'thanah' of the other "wing," has not yet been identified. The name occurs in no Muhammadan history after the time of the *Ṭabaqát i Náṣirí*, and the only hint given is, that it lay west of the Húglí, on the road, at about the same distance from Lak'hnautí city as Deokot lay from the capital—which would be the northern portion of District Bírghúm.

Minhá's remark that Banga was, in 1260, still in the hands of Lak'hman Sen's descendants, is confirmed by the fact that Sunnárgáon is not mentioned in the *Ṭabaqát*; nor does it occur on the coins of the first century of Muhammadan rule. It is first mentioned in the *Tárikh i Baraní* as the residence, during Balban's reign, of an independent Rái; but under Tughluq Sháh (A. D. 1323), Sunnárgáon and Sátgáon, which likewise appears for the first time, are the seats of Muhammadan governors, the term 'Bangálah' being now applied to the united provinces of Lak'hnautí, Sátgáon, and Sunnárgáon.‡

The *Tárikh i Baraní*, the *Tárikh i Fírúزشáhi* by 'Afif, and the *Travels of Ibn Baṭúṭah* yield but little additional information. Fírúzábád, or Paṇḍuah (north of Máldahá, or Máldah) which General Cunningham significantly calls 'Hazrat Paṇḍuah,' or 'Paṇḍuah, the Residence,' appears as the new capital, and in connexion with it Fort Ekdálah, said to be 'near Paṇḍuah.' The actual site of this fort is still a matter of doubt; even the

\* Of Kai Káús Sháh, A. D. 1297. *Journal*, A. S. B., 1872, Pt. I., p. 102.

† Major Raverty, of whose translation of the *Ṭabaqát* two fasciculi have just appeared, informs me that all his best MSS. have لکھنور, Lak'hnúr. The *Bibliotheca Indica* edition has لکھنور, and often also لکور; and it was, no doubt, the last spelling that led Stewart to substitute Nágor (in western Bírghúm), which certainly lies in the direction indicated. Outside of the Marátha wall of Nágor, we have a Lak'hí-púr and a Lak'hínáráyanpúr.

‡ Baraní, p. 452. He spells Satgáon, not Sátgáon. It is almost useless to remark on the geography of Bengal as given in the *Ṭabaqát* before the appearance of Major Raverty's translation, who has collated nearly all existing MSS. of the work. The *Bibliotheca Indica* edition is untrustworthy. Taking it, however, as it is, we find the following places mentioned—Núdiyah, in this spelling, for 'Nadiyá; Lak'hnautí; Banga; Rál (Ráḍha); Barendra; Lak'hnúr; Deokot; Nárkotí (?), دیار کونی, ناریکوتی, pp. 156 to 158; کنکوری, کنکوری (?), p. 158; مکیدس (?), and منطوس (perhaps سنطوس), p. 158; Bangáon, p. 153; Fort Bishnkoṭ, founded by Husámuddín 'Iwaz near Lak'hnautí, pp. 180, 243. Besides these, a few places are mentioned on the frontiers of Bengal, as Kámrúd (always with this spelling) for Kámrúp; دیار سکنات, Jagannáth (Púrí)?; and a few places in Asám or Tibbat; ازمردون, p. 263; and Jájnagar, regarding which vide below.

The *Tárikh i Firishtah* furnishes the isolated fact of the foundation of Rangpúr by Bakhtyár Khiljí on the frontier of Bengal (Lucknow Edition, p. 293).



author of the Riyázussalátin, who lived in the neighbourhood of Máldah and Paṇduah, says nothing about it.\*

About 850 A. H. (A. D. 1446), during the reign of Náṣiruddín Mahmúd Sháh, the capital was transferred to Gaur. Thus Lak'hnautí is henceforth again called in history. The transfer, though it may have been connected with the restoration of an old dynasty, was unfortunate. Gaur lies in the middle between the Ganges and the Mahánandá, thus occupying, as is the case in all Deltaic lands, the lowest site; and east of it lies the Kallak Šajā marsh, called in the *Áin Chuttiá-pattiá*, into which the drainage of the town opened. Every increase in the waters of the Ganges caused the marsh, which is connected with it, to rise, and "if the [earthen] embankment broke, the town was under water,"† and the drainage was driven back into the town. Hence the removal of the capital, a short time afterwards, to Tándah,‡ and the ultimate desertion of the town as a fever centre for Ráj-mahall.

The meagre information supplied by the *Tabaqát i Nizámí* and *Firish-tah* throws no further light on the geography of Bengal, but leaves the impression that during the reigns of the independent kings (A. H. 739 to 944, or A. D., 1338 to 1538) the extent of Muhammadan Bengal was the same as what we find it in A. D. 1582, the year in which Todar Mall prepared his rent-roll of Bengal, a copy of which Abul Fazl has given in the *Áin*.

The coins and inscriptions of the above period yield a few particulars. We have the seven Bengal mint towns given by Thomas,§ to which I can

\* Mr. Thomas compares with Ekdálah the name of 'Jugdula,' a village east of Hazrat Paṇduah, towards the Purnábhaba. The Indian Atlas Sheet No. 119 also mentions a village Jagdal due north of Máldahá, near the Mahánandá, in Lat.  $25^{\circ} 17' 30''$ , and a 'Jugdul' and a 'Jugdal' will be found south-east of Gaur, Long.  $88^{\circ} 28'$ , Lat.  $24^{\circ} 42'$ . Even in other parts the name is common; for Jagdal is the Bangálí 'Jogoddul,' 'a leaf of the world,' the world being the lotus, and each town a petal of it. Another Ekdálah will be found on the same sheet, south-east of Bogra (Bagurá), Long.  $89^{\circ} 40' 30''$ , Lat.  $24^{\circ} 35' 45''$ , and a third is in Rájsháhi, a little south-west of Nátor. The name seems to be the Bangálí *একদাল*, 'having one wing;' and Dodalá 'having two wings,' occurs likewise as a name of villages.

† *Áin i Akbarí*.

‡ Rennell marks 'Tarah' near the Paglá River (a branch of the Ganges and perhaps the old bed of the river), south-west of the fort of Gaur. "Tanda standeth from the river Ganges a league, because in times past the river flowing over the bankes, in time of raine did drowne the countrey and many villages, and so they do remaine. And the old way the river Ganges was wont to run, remaineth drie, which is the occasion that the citie doeth stand so farre from the water." Ralph Fitch.

The losses of Akbar's Bengal army in Gaur will be found in my *Áin* translation, p. 376.

§ Lak'hnautí, Firúzábád (Paṇduah), Sátgáon, Shahr i Nau (?), Ghiyáspúr, Sunnárgáon, and Mu'azzamábád. *Chronicles*, p. 151.





now add three more, *viz.* Fathábád, Khalifatábád, and Husainábád, which will be discussed below. The inscriptions reveal the important fact, that Bengal was divided into revenue divisions called Mahalls, over which, as in the Dill empire, Shiqdárs\* were placed, and into larger circles under 'Sarlashkars,' or military commanders, who have often also the title of Vazír (Díwán). Of places mentioned on inscriptions I may cite—Iqlim Mu'az-zamábád (Eastern Maimansingh); Thánah Láúr (north-western Silhat,—both occur also united under the same Sarlashkar); Sarhat, in western Bírghúm, now in the Santal Parganahs; Láopallah, east of the Island in the Húgli opposite Tribení Ghát, evidently in olden times an important place as lying at the point where the Jabuná leaves the Húgli and commences her tortuous course, first easterly, then southerly, into the Sundarban;† and also several places which have not yet been identified, as Simlábád, Hádígarh, and Sájla-Mankhbád.‡

From the middle of the 16th century we have the works and maps of Portuguese historians, notably the classical 'Da Asia' by Joao de Barros (died 1570); and the graphic descriptions of Cæsar Frederick (1570) and Ralph Fitch (1583 to 1591). Nor must I forget the Persian traveller Amín Rázi, an uncle of Núr Jahán, who composed his 'Haft Iqlím' in A. H. 1002 (A. D. 1594); but it is doubtful whether he visited Bengal, or merely wrote down what he heard at Ágrah. I shall occasionally refer to the works of these travellers below.§

But by far the most interesting contribution to the geography of Bengal, in spite of the unsatisfactory state of the MSS., is Todar Mall's rent-roll. Though of 1582, it may be assumed that Todar Mall merely gave in it what he found to exist with regard to both divisions and revenue; for Bengal was only subjugated during Jahángir's reign, and properly assessed

\* How extensively the Hindús were employed as revenue officers may be seen from the fact that the Arabic-Persian *Shiqdár* and *Majmu'ahdár* have become Bangálí family names, generally spelt 'Sikdar' and 'Mozoomdar.'

† The island opposite Tribení has a conspicuous place on De Barros' Map of Bengal and on that by Blaeu (*vide* Pl. IV.). The maps also agree with Abul Fazl's statement in the *Aín*, that at Tribení there are three branches, one the Saraswatí, on which Sâtgáon lies; the other, the Ganga, now called the Húgli; and the third, the Jon or Jabuná (Jamuná). De Barros and Blaeu's Maps shew the three branches of almost equal thickness, the Saraswatí passing Satigam (Sâtgáon), and Chouma (Chaumuhá in Húgli District, north), and the Jabuná flowing westwards to Buram (Boṛhan, in the 24-Parganahs).

‡ Journal, A. S. Bengal, 1870, Pt. I., p. 284.

§ I have not mentioned Nicolò de Conti's Travels (1419 to 1444, A. D.), because he only mentions one town in Bengal, *Cernobe* on the Ganges, which Col. Yule has identified with the 'Shahr i Nau,' or 'New Town' on Sikandar Sháh's coin of 1379 (Thomas, In. Coinage of Bengal, Journal, A. S. Bengal, 1867, p. 65); but the position of this town is still a matter of doubt.



by Prince Shujá' a short time before 1658. In the *Ain* we find that Bengal proper was divided into 19 Sirkárs, and 682 Mahalls. Eight of the 19 Sirkárs, and 204 of the 682 Mahalls, have Muhammadan names. The rent-roll included both the *khálīqah* ('genuine,' *vulgo* khalsa) or crownlands, and the *aqtá* or *jágír* lands, *i. e.* lands assigned to officers in lieu of pay or maintenance of troops. The distribution of the Sirkárs depended, as in the old Hindú division, on the courses of the Ganges, Bhagirathí, and Megna, or, as the *Ain* expresses it, on the courses of the Padmáwatí, Ganga, and Brahmaputra, as will be seen from the following list of the Sirkárs.

#### A. Sirkárs North and East of the Ganges.

1. Sirkár Lak'hnautí, or Jannatábád, extending from Taliágarhí (K'halgáon, Colgong) along the northern banks of the Ganges, and including a few mahalls now belonging to district Bhágalpúr and Púrniah, and nearly the whole of Máldah district. Besides Gaur, this Sirkár contained the ancient town of Rángámāti.\* 66 mahalls; khalsa revenue, Rs. 471,174.†

2. Sirkár Púrniah, or Púranniah, the greater and chiefly westerly portion of the present district of Púrniah, as far as the Mahánanda.‡ 9 mahalls; revenue Rs. 160,219.

3. Sirkár Tájpúr, extending over Eastern Púrniah east of the Mahánanda, and Western Dínájpúr. 29 mahalls; revenue, Rs. 162,096.

4. Sirkár Panjrah, so called from the Hawelí mahall Panjrah, north-east of the town of Dínájpúr, on the Atrai River, comprising the greater part of Dínájpúr district. 21 mahalls; revenue, Rs. 145,081.

5. Sirkár G'horág'hát, so called from the town of G'horág'hát or Chauk'handí on the right bank of the Karatayá, comprising portions of Dínájpúr, Rangpúr, and Bagurá (Bograh) districts, as far as the Brahmaputra. Being a frontier district towards Koch Bihár and Koch Hájo, it contained numerous jágír lands of Afghán chiefs and their descendants. The Sirkár produced a great deal of raw silk. 88 mahalls; revenue, Rs. 202,077.§

6. Sirkár Bárbakábád, so called from Bárbak Sháh, king of Bengal (*vide* below), and extending from Sirkár Lak'hnautí along the Podda to Bagurá. It comprises portions of Máldah and Dínájpúr, and a large part of Rájshábi, and Bagurá. Its cloths were well known, especially the stuffs

\* Máldah is once mentioned in the *Tuzuk i Jahángírí* (p. 178)—"When I [Jahángír] was prince, I had made a promise to Mír Ziyáuddín of Qazwín, a Saifí Sayyid, who has since received the title of Muçtafá Khán, to give him and his children Parganah Máldah, a well known Parganah in Bengal. This promise was now performed (A. D. 1617).

† Akbarsháhi Rupees (1 Rupee = 40 dáms). Grant substitutes 'Sicca Rupees,' at 2s. 3d.

‡ It seems as if the Mahánanda, in its upper course, is often called Mahánadí. Van den Broucke calls it on his map 'Martnade.'

§ Some MSS. have 209,577 Rs.



called *khāṣah* (the “koses” of old writers) as the *khāṣah* of Shahbāzpūr, the *ṣahan* (صحان, the ‘sanēs,’ or ‘sahnes’ of Dutch writers), and the *mūminī*. 38 mahalls; revenue, Rs. 436,288.

7. *Sirkār Bāzúhá*, extending from the preceding across the Brahmaputra into Silhaṭ, comprising portions of Rājshāhī, Bagurá, Pabná, Maiman Singh, and reaching in the south a little beyond the town of Dháká (Dacca).\* The name ‘Bāzúhá’ is the plural of the Persian word *bāzú*, ‘an arm, a wing;’ and all mahalls in this *Sirkār* have the word *bāzú* after their name, which on our survey maps appears under the Bangálí form ‘Bajoo.’† 32 mahalls; revenue, the largest of all *Sirkárs*, Rs. 987,921. To this *Sirkār* belonged Dháká, and Sherpūr Murcha, or Mihmānsháhi, south of Bagurá on the Karataya, which is several times mentioned in the Akbarnámah as a military station.

8. *Sirkār Silhaṭ*, adjacent to the preceding, chiefly east of the Surmá River. As will be seen below, the country was only conquered by the Muhammadans in the end of the 14th century, and was exposed to continual invasions from Tiparah and Asám. According to Marco Polo, the Aín, and the Tuzuk, Silhaṭ supplied India with eunuchs. Jahángír issued an edict forbidding the people of Silhaṭ to castrate boys. Like Kámrúp, Silhaṭ is also often mentioned as the land of wizards and witches, and the fame of its *jádú*, or witchcraft, is still remembered at the present day. 8 mahalls; revenue, Rs. 167,032.

9. *Sirkār Sunnārgáon*, to both sides of the Megna and the Brahmaputra, containing portions of western Tiparah, Bhaluá, and Noák’háli, subject to repeated attacks by the Rájahs of Tiparah and Arakan. 52 mahalls; revenue, Rs. 258,283. The *Haft Iqlím* gives Rs. 330,000.

\* Stewart says that Dháká is a modern town, “because the name does not occur in the Aín.” But it does; *vide* my text edition, p. 407, where the Mahall to which it belongs, is called Dhakká Bázú. In Gladwin’s spelling ‘Dukha Bazoo’ it is, however, scarcely recognizable. Dháká occurs in the Akbarnámah as an Imperial thánah in 1584; and Sir A. Phayre (*vide* above, p. 53) mentions it in 1400.

† Thus the country west of Pabna is called ‘Bajooras’ and east of it ‘Bajoochup’—corruptions of *Bázú i rást*, ‘the right wing,’ and *Bázú i chap* ‘the left wing.’ Other corruptions are—Esub, or Eshub, or Esop, or Isaf, for ‘Yúsuf;’ thus ‘Esubshye,’ for ‘Yúsuf-sháhi;’ Nasipore, for Nasíbpúr, (from Naṣīb Sháh); Nujeepore, for Najíbpúr; Haleeshur (opposite Tribeni) for Hálíshahr, = Hawelí i Shahr [Sátgáon]; Mahomedshye for Mahmúdsháhi, (Jessore); Bajitpore, for Báyazídpúr (in Dínájpúr); Juffurshye, for Zafarsháhi, (not Ja’farsháhi); Kali Modunpúr (which sounds like a Hindú name), Kalím-uddinpúr; Puladassy, north of Bagurá, for Fúládsháhi; Masidpore and Majidpore, for Masjídúr (*vide* Beames, Comp. Grammar, p. 209).

In the spelling of Bengal names care should be taken with the frequent ending *daha*, ‘eddy,’ as Máldahá, spelt in Persian Máldah; but the final *h* is radical, and the name should not be spelt Máldá, as Málwah, Rájah, &c., = Málwá, Rájá, &c.

Aurangzib forbade by edict spellings like Málwah, Rájah, &c.; he wanted people to spell Málwá, Rájá.



10. *Sirkár Chátgáon* (Chittagong), never properly annexed before the reign of Aurangzib. 7 mahalls; revenue, Rs. 285,607.

*B. Sirkárs in the Delta of the Ganges.*

11. *Sirkár Sátgáon*. A small portion only, the land between the Húglí and the Saraswatí, lay west of the Húglí, whilst the bulk of the *Sirkár* comprised the modern district of the 24-Parganahs to the Kabadak, western Nadiyá, south-western Murshidábád, and extended in the south to Hatiágarh below Diamond Harbour. To this *Sirkár* belonged Mahall Kalkattá (Calcutta) which, together with two other mauza's, paid, in 1582, a land revenue of Rs. 23,905. 53 mahalls; revenue, Rs. 418,118.

12. *Sirkár Mahmúdábád*, so called after one of the three Mahmúd Sháhs of Bengal, and comprising northern Nadiyá, northern Jessore, and western Farídpúr. 88 mahalls; revenue, Rs. 290,256.

13. *Sirkár Khalífatábád*, or southern Jessore and western Báqirganj. The *Sirkár* is called after Khalífatábád, which was the name of the small Hawelí-parganah near Bágherhát (*vide* below). The largest mahall of this *Sirkár* was Jesar (Jessore), or Rasúlpúr; and among others, we find here the Mahalls Múndagáchha and Malikpúr, which the Khán i A'zam, when governor of Bengal under Akbar (*Ain* translation, p. 326), is said to have given to Bhabeshwar Rái, the ancestor of the present Rájahs of Jesar. The name of Jesar, therefore, occurs as early in 1582; hence Van den Broucke's map (1660) also gives it conspicuously as 'Jessore.\* 35 mahalls; revenue, Rs. 135,053.

14. *Sirkár Fathábád*, so called after Fath Sháh, king of Bengal, comprising a small portion of Jessore, the whole of Farídpúr, southern Báqirganj, portions of Dháká district, and the Islands of Dak'hin Shahbázpúr, Sondíp, and Sidhú, at the mouth of the Megna. The town of Farídpúr lies in the Hawelí Parganah of Fathábád. 3 mahalls, revenue, Rs. 199,239.

15. *Sirkár Baklá*,† or Ismá'ílápúr, north-east of the preceding, comprising portions of Báqirganj and Dháká districts. It is the *Bacala* of old maps. 4 mahalls; revenue, Rs. 178,756.

*C. Sirkárs South of the Ganges and West of the Bhagirathí (Húglí).*

16. *Sirkár Audambar*, or Tándah, comprising the greater portion of Murshidábád district, with portions of Bírghúm. The name Audambar occurs also in other parts of India, *e. g.* in Kachh.‡ Tándah did not long enjoy the position of capital: Sher Sháh already had made plans to remove it

\* *Vide*, however, Westland, Jessore Report, p. 29.

† The author of the *Siḡarul Mutaakhhharín* calls it Hoglá (هوگلا), from the Bangálí word *hoglá*, which signifies marsh reed—a name which no doubt explains the name of Húglí; but he strangely confounds *Sirkár Baklá* with *Sirkár Sátgáon* (Húglí).

‡ *Vide* Cunningham, *Ancient Geography of India*, I, p. 248.



to Ag Mahall on the opposite bank. But this was only carried out by Rájah Mán Singh, who changed the name of Ag Mahall to Ráj Mahall, and subsequently to Akbarnagar. The same Sirkár became again in later times under Prince Shujá' the seat of government, and later still under Nawáb Ja'far Murshíd Qulí Khán, who changed the name of the old town of Makhçúçábád,\* the *Muxabad* or *Muxadabad* of old maps, to Murshidábád. 52 mahalls; revenue, Rs. 601,985. The Haft Iqlím gives its revenue at Rs. 597,570.

17. Sirkár Sharífábád, south of the preceding, comprising the remaining portions of Bírghúm, and a large portion of Bardwán district, together with the town of Bardwán† itself. Mahalls Bárbak Singh and Fath Singh, so called after the Bengal kings Bárbak Sháh and Fath Sháh, and Sherpúr 'Atái, where Mán Singh defeated the Afgháns (*Aín* translation, p. 341) also belonged to this Sirkár. 26 mahalls; revenue, Rs. 562,218.

18. Sirkár Sulaimánábád, a straggling Sirkár, which comprised a few southern parganahs in the modern districts of Nadiyá, Bardwán, and the whole north of Húglí district. This Sirkár was so called after Sulaimán Sháh of Bengal, who also called several parganahs after himself in Murshidábád, Jessore, and Báqirganj districts; but whether the name was too long, or was purposely changed after Akbar's conquest of Bengal in honor of Prince Salim (Jahángír), it only occurs now-a-days in the form 'Salímábád.' The chief town of the Sirkár was Salímábád [Sulaimánábád], on the left bank of the Damúdar, south-east of the town of Bardwán. It is marked as 'Silimath' on Van den Broucke's map. Olá (the old name of Bírñagar) in Nadiyá, known from the Srimanta legend, and Paṇḍuah, on the E. I. Railway, with its Buddhist ruins and ancient mosques, also belong to this Sirkár. 31 mahalls; revenue, Rs. 440,749.

19. Sirkár Madáran, extending in a semicircle from Nágór in Western Bírghúm over Ráníganj along the Damúdar to above Bardwán, and from there over K'hand Ghosh, Jahánábád, Chandrakoná (Western Húglí District) to Mandalg'hát, at the mouth of the Rúpnaráyan River. 16 mahalls; revenue, Rs. 235,085.

Thus the above nineteen Sirkárs, which made up Bengal in 1582, paid a revenue on khalsa lands, inclusive of a few duties on salt, *háts*, and

\* The Akbarnámah mentions a Makhçúç Khán, brother of Sa'id Khán; *vide* my *Aín* translation, p. 388. Makhçúç Khán served in Bengal and Bihár, and his brother Sa'id Khán was for some time governor of Bengal.

† The Muhammadan pronunciation of the Bangáli *Bordomán*. The Haft Iqlím mentions an extraordinary custom that obtained in this Sirkár. "Feminae hujus provinciae instrumentum quoddam fictile penis instar in vulvam et in anum inferunt, ut sordes removeant." The old kings have in vain tried to break them off this habit."

Regarding the Muhammadan antiquities of Bardwán, *vide* Journal, As. Bengal, for 1871, Pt. I, p. 254.



fisheries, of 253,482,106 dáms, or Rs. 6,337,052.\* According to Grant, the value of the jágir lands was fixed at Rs. 4,348,892, so that we have, in 1582, A. D., as total revenue of Bengal, in its then circumscribed limits, the sum of Rs. 10,685,944. This was levied from the ryots in specie† as the equivalent of the *rub'*, or fourth share, of the entire produce of the land, claimed by the sovereign as despotic proprietary lord of the soil.

This rent-roll remained in force during the reign of Jahángir. The remittances from Bengal to Dihlí were, it is true, not very regular, nor up to the sums levied, so much so that Jahángir appointed, in the end of his reign, Fidái Khán, governor of Bèngal, merely because he promised to send regularly one million of rupees to court. Under Sháhjahán, the boundaries of Bengal were extended in the South-West, Medinípúr and Hijlí having been attached to Bengal, and in the East and North-East by conquests in Tiparah and Koch Hájo; and when Prince Shujá' was made governor, he made, shortly before 1658, a new rent-roll, which shewed 34 Sirkárs and 1350 Mahalls, and a total of revenue, on khalsa and jágir lands, of Rs. 13,115,907. Shujá's rent-roll remained in force till 1722, an addition having been made after the conquest of Chátgáon. In that year, Nawáb Ja'far Khán (Murshid Qulí Khán) issued his *Kámil Jama' Tímárí*, or 'Perfect Rent-roll,' in which Bengal was divided into 34 Sirkárs, forming 13 Chaklahs, and sub-divided into 1660 Parganahs, with a revenue of Rs. 14,288,186.

It was, however, only after the rule of Nawáb Ja'far Khán that the *Abwáb* revenue‡ gradually appeared in the books. Though vast sums had been levied on this head, they had been looked upon as private emoluments of office. As early as in the tenure of Shujá' Khán, Nawáb Ja'far's successor, we find the Abwábs entered as yielding Rs. 2,172,952, and they rapidly increased under 'Alí Virdí Khán and Qásim Khán, so that, when the E. I. Company in 1765 acquired the Diwání, the *net* amount of all revenue collected by authority in Bengal was Rs. 25,624,223.

It is not my intention to enter here further in the historical portion of the revenue question of Bengal, nor shall I minutely describe the Sirkárs and the Mahalls or detail the historical and geographical

\* Grant's total is Rs. 6,344,260, or Rs. 7,208 more, chiefly on account of the higher sum given by him for Sirkár G'horág'hát. Vth Report, p. 258.

† "The ryots (*ra'iyyat*) of Bengal are obedient and ready to pay taxes. During eight months of the year they pay the required sums by instalments. They personally bring the money in rupees and goldmuhurs to the appointed place. Payment in kind is not usual. Grain is always cheap. The people do not object to a survey of the lands, and the amount of the land tax is settled by the collector and the ryot (*nasag*). His Majesty, from kindness, has not altered this system." *Ain i Akbarí*.

‡ Imposts as fees on the renewal of annual leases of zamíndárs (*khácnawísí*); *nazránahs*; fees for remission of imperial revenue; *zar i mahaut*, or imposts levied for the maintenance of the Nawáb's elephants; and many more.



changes that took place; these I must necessarily reserve for the second volume of my *Ain* translation. But I shall now attempt to trace the frontiers of Bengal under the Muhammadan rule as far as existing historical sources allow us to do.

### The Frontiers of Muhammadan Bengal.

Abulfazl estimates the breadth of Bengal from Garhí to Chátgáon at four hundred *kos*. From north to south, the longest line was from Koch Bihár to Chittúá in Sirkár Medinípúr. "The zamindárs are mostly Káyasths." Not a word is said on the strength of the Muhammadan population, or the progress of Islám—comparative statistics were not thought of in his age. The remark made by old English travellers that the inhabitants of the islands and the coast of south-eastern Bengal were chiefly Muhammadans, and the uncertain legend regarding the introduction, in the beginning of the 16th century, of Islamitic rites into Chátgáon by Nuçrat Sháh are the only allusions that I have seen on the subject. • Neither history nor legends allude to the conversions among the semi-aboriginal rural population, that must on a large scale have taken place during the reigns of the independent kings of Bengal, chiefly, no doubt, through the exertions of the numerous Afghán Jágirdárs.

The military and naval power of the country is fixed at 23,330 horse, 4,260 guns, 1,170 elephants, and 4,400 boats. In Nawáb Ja'far's rent-roll, however, the strength of the naval establishment (*nawára*) consisted of 768 armed cruisers and boats, which were principally stationed at Dháká, to guard the coast against the Mags and foreign pirates; and the number of sailors included 923 Firingís, chiefly employed as gunners. The annual charges of the navy, including construction and repairs, was fixed at Rs. 843,452, which was levied under the name of 'amaláh i nawára from parganahs in South-Eastern Bengal. The same rent-roll mentions that the garrisons along the whole eastern frontier from Chátgáon to Rángamáti on the Brahmaputra consisted of 8,112 men (*ahshám*), who cost 359,180, Rs. per annum.

Of the roads in Bengal we have no information prior to Van den Broucke's map (1660) in Valentyn's work. He marks (1) a principal road passing over Patna, Munger, and Rájmahall to Sútí, where the Bhagirathí leaves the Ganges. From here a branch went to Moxudabath (Murshidábád), Plassi (Palásí), and Hagdia,\* crossed the Bhagirathí for Gasiapore,

\* Hagdia is Agardíp. Van den Broucke's map gives here an interesting particular. He marks Hagdia on the left bank of the river, and Gasiapoor (Gházípúr) on the right bank. Both places lie now far from the right bank, with only a small k'hál between them, and a large semi-circular lake round both. The lake, as else-



and passed on to Bardwán, Medinípúr, Bhadrak (wrongly marked on the right bank of the Baitarani), and Katak. The other branch went from Sútí along the right bank of the Podda to Fathábád, from where it passed on to Dháká. These two branches are marked as principal roads (*sháhí rastah*). (2) A road from Bardwán to Baccaresoor (Baklesar in Bírghúm, famous for its hot springs, within the Marátha Intrenchment of Nágor), and from there to Qásimbázár and the banks of the Ganges, and across the river to 'Hasiaarhati.' This is Hajrahattí, on the left bank of the Podda, now also a ferry place, near the entrance of the Burul River, below Rámpúr Boáliá, and seems to be the Qázihattí (Beng. Kájierhattí), which Abulfazl mentions in the *Ain*. From Hasiaarhati the road passed to a place called Harwa, and from there to Ceerpoor Mirts, *i. e.* Sherpúr Murchah, on the Karataya, and passing over Tessiadin (Chandíján, north of Sherpúr, ?) to Gorregaut (G'horág'hát) and Bareithela (Barítalá) on the Brahmaputra, which will be mentioned below as a frontier town. (3) A road from Bardwán over Salimábád, Húgli, Jessore, Bosnah, Fathábád, across the river to Sjatterapoer,\* Casisella, and Idrákpúr, opposite the confluence of the Lak'hiá and the Dalásari, near Ballál Sen's palace. (4) A road from Dháká, across the Dalásari to Piaarpoer and Bedlia, which latter place is marked at the point where the Dalásari leaves the Jamuná, and from there to Sasiadpoor (Sháhzádpúr, in Pabnah), and Handiael (Hariál).

### *The Western Frontier.*

In the north-west, the frontier of Bengal extended but little beyond the Kosi River; but under some of the early Muhammadan governors and the independent kings, the Bengal empire included all upper Bihár north of the Ganges as far as Sáran. Of Ilyás Sháh, for example, it is asserted that he was the founder of Hájípúr, opposite Patna, on the Ghandak, although Firúz Sháh, on his return from Bengal, appointed for the first time Imperial collectors in Tirhut. Sikandar Sháh's coins, again, have been found far west of the Kúsi.

Southern Bihár only belonged to Bengal from the time of the conquest by Bakhtiyár Khiljí to about 730 A. H. (A. D. 1330), when Muhammad Tughluq annexed it to Dihlí. From 800 again (A. D. 1397), the whole of Bihár belonged to the kingdom of Jaunpúr. Under Buhlúl again, Daryá Khán Loháni was governor of Bihár; and under Ibráhim, Daryá's son Bahádur Khán assumed independence in Bihár under the title of Sháh Muham-

where in Bengal, is the old bed of the river, which now follows the shorter route along the chord of the loop.\* This change, therefore, took place after 1660.

Thus also Nadiyá lies now on the right bank of the river; but west of the town, there is still the old channel, which goes by the name of Ganga Bhárat.

\* Rennel gives Satrapur; but modern maps give no such name.



mad.\* It is not clear how far these Afghán chiefs depended on Husain Sháh of Bengal, whom inscriptions represent firmly established in 903 at Munger, while other inscriptions from Bonhárá and Cheran (near Sáran) would lead us to conclude that the whole of Upper Bihár and the western portions of Southern Bihár belonged to him in A. H. 908 and 909 (A. D. 1502, 1503). On the other hand, we hear in history of the cession by Husain Sháh of Bihár, Sáran, and Tírhut, and of the reconquest of these lands by Nuçrat Sháh, who, if he could not hold them, assisted the Afgháns against Bábar. Nuçrat Sháh seems even to have passed beyond the Ghandak; for a mosque near Sikandarpúr, on the right bank of the river, in District A'zamgarh, was built during his reign.

South of the Ganges, the western frontier is better defined. Fort Taliágarh, or Garhí,† near K'halgáon (Colgong) on the Ganges, was looked upon as the entrance, or key, to Bengal—a position which Muhammadan historians compare with that of Fort Sahwán on the Indus, the key of Sindh. From Garhí the frontier passed along the Ganges to the south of Ág-Mahall (Ráj Mahall), when it again turned westward to north-western Bírghúm, passing along the boundary of the modern Santál Parganahs to the confluence of the Barákar and the Damúdar, from where it went along the left bank of the Damúdar to the neighbourhood of the town of Bardwán. From here the frontier took again a westerly direction, and passed along the north-western and western boundaries of the modern Húglí and Habrah (Howrah) Districts down to Mandalg'hát, where the Rúpnaráyan flows into the Húglí River.

This boundary, it will be seen, excludes the whole of the Santál Parganahs from the south of K'halgáon to the Barákar, Pachet,‡ and the territory of the Rájahs of Bishnpúr (Bankurá). In vain do we look in Santalia for Muhammadan names of villages and towns; and though there can be no doubt that the Muhammadan kings of Bengal tried to hold parts of the hills by establishing thánahs and appointing jágirholders, no permanent settlements were formed. One of the most westerly thánahs in southern Santalia was Sarhat, N. W. of Shiúrí (Soory) in Bírghúm, which is mentioned in Tribení inscriptions;§ whilst the settlement of Pathán

\* Called in many MSS. Mahmúd.

† It is not known which king built the fort; but it may be accidental that the name does not occur in the *Ṭabaqát i Náçirí* and in *Baraní*. At K'halgáon, Mahmúd Sháh III., the last independent king of Bengal, died in 945 (1538 A. D.).

‡ Regarding the invasion of Chutiá Nágpúr by the Muhammadans, *vide* J. A. S. B., 1871, Part I, p. 111.

§ Sarhat, spelt on inscriptions *Sighat*, lies on the left bank of the Ajai River. Its name on modern maps is corrupted to Saruth. Rennell has Sarhaut. Outside the place, the survey maps mark two old forts. A little to the south of it, a village of the name of Lukrakhonda is marked. Rennell on his map of Bírghúm (Bengal Atlas,



jágirdárs, before and after the time of Sher Sháh, as a standing militia against the inroads of the tribes of Jhárk'hand (Chutiá Nágpúr), led to the formation of the great Muhammadan zamindari of Bírghúm, which gave the E. I. Company some trouble.

In Todar Mall's rent-roll the following Mahalls are mentioned along this portion of the western frontier of Bengal—Ág Mahall (Rájmahall), Kámkjol, Kunwar Partáb, Molesar,\* in Sirkár Audambar or Tánḍah; Bharkúndah,, Akbarsháhi, Kaṭangah, in Sharifábád (Bírghúm); Nágor, Sainbhúm, Shergarh (Rániganj), Champánagarí (N. W. of the town of Bardwán), Madáran (Jahánábád and Chandrakoná, west of Húgli), Chittúá (District Medinípúr), and Mandalg'hát, at the mouth of the Rúpnaráyan, all belonging to Sirkár Madáran.

The name of the frontier mahall of Bharkúndah in Bírghúm, mentioned above, seems to have been formerly extended to the whole of Bírghúm and the Santál Parganahs. In this extended sense, it is used in the *Tárikh i Dáúdí*,† on De Barros' map of Bengal, and on Blaeu's map of India (*vide* Pl. IV). In the latter, it is only given as 'Barcunda,' but in the former as 'Reino de Barcunda,' extending from Ferrandus (a corruption of Bardwán) to Gorij, in which we recognize Garhí, the 'key of Bengal.' West of Barcunda, De Blaeu and De Barros give 'Patanes,' *i. e.* the Patháns, the military and semi-independent landholders of the western Bengal frontier. On the Ganges, both maps shew Gouro (Gaur), and opposite to it, 'Para', for which De Barros gives 'Rara.'‡ Both spellings may be mistakes for Tara, *i. e.* Tánḍah, which should of course be on the other side of the river; or 'Rara' stands for the old Hindú division of Rádha, which there commences. South of 'Ferrandus,' the old maps give 'Mandaram' and 'Cospetir,' which latter name is wrongly placed on Blaeu's map north of Mandaram, whilst De Barros has it correctly west of it. In Mandaram we recognize Madáran, the chief town of Sirkár Madáran, a name which even now-a-days is pronounced by the peasants Mandáran.§ 'Cospetir,' or De

No. II.) places a 'Lacaracoond,' in conspicuous letters, south of Nágor; but modern maps give no such locality. Could this be the Lak'hnúr of the Ṭabaqāt?

\* *Sábīq* (*i. e.* former) Molesar and Darín Molesar. The former name is wrong spelt in the Indian Atlas (Sheet 113) Sarik Molisser.

† Dowson, Elliot's History of India, IV., pp. 360, 364.

‡ South of Para or Rara, Blaeu and De Barros give a place of the name of Moulanadangur; and below Gouro, Patana or Patona, and Meneitipur, which I have not identified.

§ I have identified Madáran with Bhítargarh in Jahánábád, in the north-western corner of Húgli District. *Vide* Proceedings, As. Socy. Bengal, for April, 1870, where the legends of the place are given.

As the name of Jahánábád occurs in the Akbarnámah, it has no connexion with Sháhjahán's name, but refers more likely to one of the numerous Khán Jaháns of the Pathán rule.



Barros' 'Reino Cospetir,' a name that puzzled me long, is clearly 'the kingdom of the Gajpatí,' or Lord of elephants, the title of the kings of Orísá, the final *r* being nothing but the ending of the Bangálí genitive. Sirkár Madáran was indeed the frontier of Orísá; but if the legends of the Húglí District speak of the Gajpatís having once extended their kingdom to the Ganges (Húglí River), it must have been prior to the time when Sâtgáon became the seat of Muhammadan governors.

It is remarkable that among the names of the jungly and hilly frontier districts, we find so many ending in *bhúm*. Thus we have Birbhúm;\* Sainbhúm, along the left bank of the Ajai, in Birbhúm district; Sik'harbhúm or Shergarh, the mahall to which Rániganj belongs; Gopíbhúm, along the right bank of the Ajai; Bámanbhúm or Bráhmanbhúm, in northern Medinípúr District; Mánbhúm, Baráhbhúm, Dhalbhúm, Singbhúm, in Chutiá Nágpúr; Túnbhúm, in southern Parúliá; Malbhúm, the frontier of Bardwán and Medinípúr Districts; Bhanjibhúm, with the town of Medinípúr,† &c. Similarly, the frontier district between Rangpúr and the Brahmaputra, comprising Mahalls Bhitiband and Báhirband, is called in Shujá's rent-roll 'Bangálbhúm.'

I mentioned Mahall Mandalg'hát at the confluence of the Rúpnaráyan and the Húglí as the south-western frontier of Bengal. The Districts of Medinípúr and Hijlí (south-east of Medinípúr) were therefore excluded. They belonged to the kingdom of Orísá till A. H. 975, or A. D. 1567,‡ when Sulaimán, king of Bengal, and his general Kálá Pahár defeated Mukund Deb, the last Gajpatí. Even after the Afghán conquest, Medinípúr and Hijlí continued to belong to the province of Orísá, when Khán Jahán Afghán was appointed by Dáúd Sháh governor of Orísá, Qutlú Khán Lohání being made governor of Púrí. On the 20th Zí Qa'dah, 982, (3rd March, 1575) Mun'im KhánKhánán, Akbar's general, defeated Dáúd Sháh at Tukarói or Mughulmárá, north of Jalesar, and in the peace of Katak, in the beginning of 983, Bihár and Bengal were ceded. In 984, Dáúd again invaded Lower Bengal, but was defeated and killed on the 15th Rabí' II, 984, near Ág Mahall by Husain Qulí Khán Jahán, when Bengal was again annexed to Dihlí, and the Afgháns withdrew to Orísá. Then the Bengal Military Revolt broke out, and Orísá was invaded, in A. H. 1000, (A. D. 1592) by Mán Singh, when the country was finally annexed to the Dihlí empire. Hence Medinípúr and Hijlí appear

\* The name occurs in the *Áin* as a Mahall; but as name for a large division it does not seem to have been used before the 18th century.

† The *Áin* also mentions a mahall Bhowálbhúm under Sirkár Madáran; modern maps do not give this name.

‡ So according to the *Akbarnámah*. Stirling fixes an earlier date; but Sulaimán reigned from A. H. 975 to 980. Besides, Akbar sent in 972-973 ambassadors to Mukund Deb.



together in Todar Mall's rent-roll as one of the 5 Sirkárs of the province of Orísá. Subsequently, Orísá had separate governors; but under Prince Shujá' their power was lessened, and the portion from Mandalg'hát to Baleswar (Balasore) was separated from Orísá and permanently attached to Bengal.\*

Hijli (*Hidgelee, Hedjelee, Grant; Hingeli, Van den Broucke; Ingellee, Rennell; Injelee, Stewart, Marshman; Angeli, Purchas, De Laët, &c.*) appears in the *Ain* under the name of Máljhattá. According to the legends preserved in the District, the Muhammadans first attempted a settlement during the reign of Husain Sháh of Bengal, about A. D. 1505, when one Táj Khán Masnad i 'Alí and his brother Sikandar Pahlawán established themselves at the mouth of the Rasúlpúr River,† opposite Ságar Island. They conquered the whole of Hijli, which is said to have remained in the family for nearly eighty years, when it passed into the possession of a Hindú. As late as 1630 we hear of the conquest of Hijli. "Hingeli, which had for many years a chief of its own, was conquered about 1630 by the Great Mogul; but in 1660, the lawful chief of Hingeli, who from a child had been kept a prisoner, found means to escape, and with the help of his own to re-conquer his country. But he did not long enjoy it: he was in 1661 brought into Aurangzeb's power with the help of the E. I. Company [the Dutch Company], and was again imprisoned and better looked after than at first."‡

#### *The Southern Frontier.*

The southern frontier of Muhammadan Bengal was the northern outskirts of the Sundarban, which extended, generally speaking, in the same manner almost as it now does, from Hatiágarh, south of Diamond Harbour on the Húgli,

\* "Sjah Sousa had already during his time divided Hingeli from Orisa, and had put there a separate governor, and it is for this reason alone that Hingeli, which by position belongs to Orisa, has been attached to Bengal. So it is also with the governors of Ballasour and Pipeli [Píplí or Sháhbandar, now deserted, on the Subarnarekhá River], which the Great Mogul ordered once to be under the governor of Orisa and then again under the governor of Bengal, because the two places are close to the sea." F. Valentyn, Vol. V.

Van den Broucke's map of Bengal in 1660, given by Valentyn, still shews north-west of the town of Medinípúr the "Gedenkteecken," or memorial stone, (corresponding to the 'Old Tower' of modern maps) that marked the frontier between Bengal and Orísá. Grant says that the coast of Hijli and Medinípúr as far as Balasore (Baleswar) was attached to Bengal on account of the Mags and the Portuguese privateers, who were to some extent controlled by the Imperial fleet stationed at Dháká.

† Few rivers in India have Muhammadan names. Due south of Contai the maps give a village of the name of Masnad 'Alípúr. Táj Khán's tomb is on the Rasúlpúr River.

‡ From Valentyn's work, Vol. V. The 'Alamgírnámah says nothing about it.



to Bāgherhāt in southern Jessore and to the Haring'hātā (Horingotta), or 'Deer-shore River;' *i. e.* along the southern mahalls of Sirkārs Sātgaon and Khalifatābād. Beyond the Haring'hātā and its northern portion, called the Madhūmatī or 'honey-flowing,' the frontier comprised Sirkārs Baklá and Fathābād, the modern districts of Farīdpūr and Bāqirganj (north). Sirkār Fathābād included the islands of Dak'hin Shahbāzpūr and Sondip, at the mouth of the Megna. Tiparah, Bhaluah, Noak'hālī, and District Chātgaon, were contested ground, of which the Rājahs of Tiparah and Arakan were, at least before the 17th century, oftener masters than the Muhammadans. It was only after the transfer of the capital from Rājmahall to Dhākā, that the south-east frontier of Bengal was extended to the Phānī River, which was the imperial frontier till the beginning of Aurangzīb's reign, when Chātgaon was permanently conquered, assessed, and annexed to 'Çúbah Bangálah.'

Various etymologies have been proposed in explanation of the word 'Sundarban.' It has been derived from *sundar* and *ban*, 'the beautiful forest;' or from *sundarī*, a small timber tree (*Heretiera litoralis*), which is exported as fuel in vast quantities from the coast and is supposed to have been so called from its red wood. Others again have derived the word from Chandradīp-ban, or Chandradīp forest, from the large zamīndarī of Chandradīp, which occupies the south and south-east of Bāqirganj District. Or, the name has been connected with the Chandabhandas,\* an old Sundarban tribe. Grant derives it from Chandraband, 'the embankment of the moon,' which seems to have been the etymology that obtained at his time, and which has led to the spelling 'Soonderbund' adopted by Europeans.

The application of the name to the whole seacoast of southern Bengal is modern. Muhammadan historians call the coast strip from the Húglī to the Megna 'Bhātī,' or 'low land subject to the influx of the tide,' and even now-a-days this name is very generally used. The sovereignty of this district, according to the Akbarnāmah and the Rājah Pratāpaditya legend, was divided among twelve chiefs; and Col. Wilford, whatever may have been the source of his information, says that "the kings of Arakan and Comillā were constantly striving for the mastery, and assumed the title of lords of the twelve Bhūniyās."†

The sea coast itself is marked on Van den Broucke's map in Valentyn's work as 'onbekent,' or 'unknown,' consisting of numerous islands and

\* A copper plate grant in the possession of the Society, found at 'Adilpūr (Edilpore), mentions that the villages of Baguli, Bittogádā, and Udayamuna, were given, in the third year of the reign of Keshab Sen, *i. e.* in 1136 A. D., to one Jovaradeb Sarma. The grant mentions the tribe of the Chandabhandas. The reading Chandabhanda, as Bábu Pratāpachandra Ghosh informs me, is an improved reading for Chattabhata, as the name was read by Gobind Ram; *vide* Journal, 1838, Vol. VII, p. 40.

† As. Researches, XIV, p. 451.



rivers, 'perycleuous' for ships, being the place where the "Jagt ter Shelling"\* founded in 1661.

In order to trace the direction of the northern outskirt of the Sundarban, as it existed some time before 1582 A. D., we have again recourse to Todar Mall's rent-roll in the *Ain*. There we find that Mahall Hatiágarh (below Diamond Harbour) was, in 1582, the most southerly assessed mahall of Sirkár Sátgáon. The jungle boundary then passed north-east to Baridhatti and Medinimall, north-west of Port Canning, to Bálinḍá and Máhihatti (Myehattee), then south again to Dhuliápúr,† and Bhaluká to the Kabadak River. These mahalls belong to what is now called the 24-Parganahs; and Sheet 121 of the Indian Atlas of the Survey Department will shew that they lie even now-a-days very little north of the present northern limit of the Sunderban in the 24-Parganahs. Going up the Kabadak, in Jessore, we come to Amadí,‡ to the north of which, in the immediate neighbourhood, we have Masidkoor, a corruption of Masjidkur, one of the clearances of Khán Jahán (died A. D. 1459),§ the warrior saint of Khalífatábád or Southern Jessore, to whom the traditions of the present day point as an indefatigable establisher of Sundarban-ábádís (clearances.) The *Ain* then gives Mahall Tálá, with Tálá on the left bank of the Kabadak as chief town and Kopilmuni|| near it, and then mahalls Sáhas, Khálicpúr, Charúliá, Rangdiyá (wrongly called in the Indian Atlas *Sangdia*) and Salímábád,¶ north of the modern Morrellganj at the beginning of the Haring'hátá. North-west of Morrellganj, on the Bhairab (the 'dreadful'), we have the small station of Bágherhát, which gives name to a Sub-Division, and in its immediate neighbourhood we come to another clearance by the patron-saint of Jessore, where his mosque and tomb stand. It is the country round about Bágherhát which up to the end of last century bore the name given it in the *Ain*, 'Haweli Khalífatábád,' the 'Vicegerent's clearance.' Here, amidst the creeks and the jungles, which no horseman can approach, Nuṣrat Sháh, as will be seen below, erected a mint, apparently in opposition to his father 'Aláuddín Husain Sháh.\*\*

\* Vide Mr. Foster's article, *Journal, As. Socy. Bengal*, 1872, Part I, p. 36.

† North of Ishwaripúr (Issuripore), the residence of Pratápaditya.

‡ Marked wrongly on the Survey map Armadi. Rennell has correctly Amadi.

§ Westland, *Jessore Report*, p. 20; Gaur Dás Baisákh, *Journal, As. Soc. Bengal*, 1867, pp. 130, 131; also, *Journal*, 1872, Part I, p. 108.

|| Rash Bihári Bose, *J. A. S. Bengal*, 1870, Part I, p. 235; Westland, *Jessore Report*, Chapt. VI, and p. 286.

¶ Here also the *Ain* has the form Sulaimánábád.

\*\* It is curious that a little higher up on the Bhairab, east of Khulná, where the Athárabanka (the 'eighteen windings') joins the Bhairab, there is an 'Aláipúr, i. e. 'Aláuddín's town. Were it not for the distinct statement of the *Riyázussaláfin* that 'Aláuddín, after arriving as an adventurer in Bengal, settled at a Chandpúr (a very



Thus we see that in southern Jessore also the northern limit of the Sundarban has not considerably changed since 1450 A. D.

Passing from the Haring'háṭá eastward, we come to Sirkárs Baklá and Fathábád. Sirkár Baklá only contained four mahalls, *viz.* Isná'ílápúr or Baklá; Srirámpúr; Sháhzádpúr; and 'Ádilápúr, (from 'ádíl' just, corrupted on the maps to Edilpore), which all belong to Báqirganj District. Abulfazl, in speaking of the great cyclone that swept in 1583 over Baklá, says that the then zamindár of Baklá had a son of the name of Pramánand Rái. Sirkár Fathábád derives its name from the Hawelí mahall Fathábád, in which the modern station of Farídpúr lies. Yúsufpúr and Belphúli, in Jessore District; Hawelí Fathábád and Sirdiá (Shérdiá), in Farídpúr; Balaúr, Telhattí, Saráil or Jalálpúr,\* Khargapúr, in both Farídpúr and Dháká; Hazratpúr, in Dháká; Rasúlpúr, in Dháká and Báqirganj; the Islands of Sondíp and Shahbázpúr; and a few other mahalls which I have not yet identified, belong to this Sirkár. Thus we see that the greater portion of both Sirkárs lies between the Haring'háṭá (Madhúmatí) and the Tituliá River, which flows between Báqirganj District and the island of Dak'hin Shahbázpúr. At the mouth of the Tituliá we find the Don Manik Islands, one of the few still surviving geographical names of the Portuguese.† Opposite to these islands we have mahall Názi r p ú r, which we find on the maps of De Barros and Blaeu, placed rather far to the north. Near it, we also have 'Fatiabas',‡ the chief town of Sirkár Fathábád. The whole south and south-east of Báqirganj District is occupied by the old Chandradip zamindári, which according to some, as we saw above, gives name to the Sundarban. On Rennell's map it is marked 'depopulated by the Mugs.'

Abulfazl says that there were in Sirkár Fathábád three classes of zamindárs, which perhaps refers to the independent Afghán, Hindú, and Portuguese chiefs. When Akbar's army, in 1574, under Mun'im Khán-Khánán invaded Bengal and Orísá, Murád Khán, one of the officers, was despatched to South-Eastern Bengal. He conquered, says the

common name) in Rádha District, i. e. west of the Húglí, I would be inclined to identify the Chandpúr near this 'Aláipúr as the place where the Husain dynasty of Bengal kings had its home, especially because Husain first obtained power in the adjacent district of Farídpúr (Fathábád), where his earliest coins are struck.

The Indian atlas (sheet No. 121) spells 'Aláipúr 'Alypore,' which blots out every historical recollection, and places it moreover wrongly on the right bank, instead of on the left, of the Athárabanká. 'Aláipúr is a flourishing place and has numerous potteries.

\* Which, like the name of the Sirkár, reminds us of *Jaláluddín Fath Sháh*.

† Their names for Húglí (Porto Piqueno) and for Chátgáon (Porto Grande) are no longer known; but Sherpúr Firingí, Firingibázár, Point Palmyras, still remind us of their former importance in this part of India.

‡ Van den Broucke's map has wrongly Fathpúr.



Akbarnámah, Sirkárs Baklá and Fathábád, and settled there; but after some time, he came into collision with Mukund, the powerful Hindú zamíndár of Fathábád and Bosnah, who, in order to get rid of him, invited him to a feast and murdered him together with his sons.\* This notice helps us to explain a remark made by Grant that in Sháh Shujá's rent-roll (1658) a portion of Sundarban land had for the first time been assessed at Rs. 8,454, the ábádís being called Murádkhánah.† The name of Mukund still lives in the name of the large island 'Char Mukundia' in the Ganges opposite Farídpúr. This Mukund is the same zamíndár whom the Pádisháhnámah wrongly calls 'Mukindra of Bosnah.' His son Satrijít gave Jahángír's governors of Bengal no end of trouble, and refused to send in the customary *peskkash* or do homage at the court of Dháká. He was in secret understanding with the Rájahs of Koch Bihár and Koch Hájo, and was at last, in the reign of Sháhjahán, captured and executed at Dháká (about 1636, A. D.) One of his descendants, or successors in the zamíndarí, is the notorious Sítáráam Rái of Mahmúdpúr.‡

Another Zamíndár of Fathábád is mentioned in the beginning of Sháhjahán's reign, Majlis Báyzíd,—by his very name an Afghán.

The Parganahs to the south of Báqirganj are called on the maps 'Boozoorgoomedpore' and 'Arungpore,' which names are connected with Buzurg Umed Khán, son of Sháistah Khán (Aurangzíb's governor of Bengal from 1664 to 1677) and with Aurangzíb, 'Arang' being a corruption of Aurang. East of these two Parganahs we have Sháistah-nagar.§ These names, though they do not perhaps shew when the mahalls were reclaimed, point to the time when they came for the first time on the Imperial rent-roll.

Sirkár Fathábád, as stated above, comprised the islands of Dak'hin-Shahbázpúr, Sondíp, &c. Of the latter island we have a short notice by Cæsar Frederick, the Venetian merchant, who travelled in Asia, as he himself says, from 1563 to 1581. He left Pegú for Chatigan (Chátgáon), "between

\* Aín translation, p. 374.

† Grant derives the name from *murád* and *khánah*, the 'house of desire;' but there is little doubt that we should derive it from Murád Khán, 'Murád Khán's clearance.' I do not know to what part of Báqirganj or Farídpúr the name was applied. Grant also says that Murád Khánah was sometimes called Jerádkhanah.

‡ Journal, As. Socy. Bengal, for 1872, Part I, pp. 58, 59. Satrijít's name occurs in the name of the town of Satrijítpúr on the Noboganga, in north-eastern Jessore, not far from Mahmúdpúr (wrongly called Mahomedpore on all modern maps) on the Madhúmatí and from the old town of Bosnah, on the Alangk'háli [Etlenkalli] Branch. Vide Westland's Jessore Report, p. 32.

§ Sháistah Khán's real name is Mírzá Abú Tálíb; hence we find in Dháká District a Tálíbábád. Núr Jahán was Sháistah Khán's aunt; vide Aín translation, p. 512.



which two places there was much commerce in silver,"\* but "encountered a 'Touffon' (*túfán*, cyclone), which take place in the East Indies every ten or twelve years; they are such tempests and stormes, that it is a thing incredible but to those that have seen it," and was driven to Sondip. "And when the people of the Island saw the ship, and that we were comming a-land: presently they made a place of *bazar*, or a market, with shops right over against the ship, with all manner of provision to eate, which they brought down in great abundance, and sold it so good cheape, that we were amazed at the cheapness thereof. I bought many salted kine there for the provision of the ship for half a *Larine* apiece, which *Larine*† may be 12 shillings 6 pence, being very good and fat; and 4 wilde hogges ready dressed for a *Larine*; great fat hennes for a *Bizze* [pice] a piece, which is at the most a penny: and the people told us that we were deceived the half of our money, because we bought things so deare. Also a sack of rice for a thing of nothing; and consequently all other things for humane sustenance were there in such abundance, that it is a thing incredible but to them that have seen it. This Island is called Sondiva, belonging to the kingdome of Bengala, distant 120 miles from Chatigan, to which place we were bound. The people are Moores, and the king a very good man of a Moore king, for if he had been a tyrant as others be, he might have robbed us of all."

Ralph Fitch also was about the same time in south-eastern Bengal. He says, "From Chatigan in Bengala I came to *Bacola* [*Sirkár Baklá*]; the king whereof is a Gentile [*Hindú*], a man very well disposed and delighted much to shoot in a gun. His country is very great and fruitful, and hath store of rice, much cotton cloth, and cloth of silke. The houses be very faire and high builded, the streetes large, the people naked except a little cloth about their waste. The women wear great store of silver hoopes about their neckes and armes, and their legs are ringed with silver and copper, and rings made of elephants teeth.

"From Bacola I went to *Serrepore*,‡ which standeth upon the river Ganges, the king is called *Choudery*. They be all here abouts rebels against their king Zebaldim Echebar:§ for here are so many rivers and islands,

\* The export of silver from Pegú to Bengal may have supplied the Bengal mints with silver. Sir A. Phayre and Dr. T. Oldham speak of the export of gold from Burma to the Coromandel coast. Considerable quantities of silver may also have come from Asám, where silverpieces even for small fractions of a rupee were current.

† *Lári* (لاری). *Aín translation*, pp. 23, 37. It is so called from *Láristán* in Persia.

‡ *Sherpúr Fhringí*, marked by Van den Broucke a little south of *Idrákpúr*, on the *Dalásari*, in *Parganah Bikrampur*, where *Rájá Ballál Sen's* residence was. It is not given on modern maps.

§ The first *b* is a constant misprint for *l*: *Jaláluddín Akbar*.





that they flee from one to another, whereby his horsemen cannot prevail against them. Great store of cotton cloth is made here.

"*Sinnergan* [*Sunnárgáon*] is a towne six leagues from Serrepore, where there is the best and finest cloth made of cotton that is in all India. The chief king of all these countries is called Isacan,\* and he is chiefe of all the other kings, and is a great friend to all Christians. \*\*\* I went from Serrepore the 28th November 1582 for Pegu."

*Sondíp* was only conquered in the end of 1666 (middle of Jumáda II., 1076), when *Diláwar Khán Zamíndár* submitted, though not without fighting, to Aurangzib's army that invaded *Chátgáon*.

I have a few words to say on the hypothesis which has often been started, that the whole of the Sundarban was once in a flourishing condition. No convincing proof† has hitherto been adduced; and I believe, on physical grounds, that the supposition is impossible. The sporadic remains of tanks, gháts, and short roads, point to mere attempts at colonization. The old Portuguese and Dutch maps have also been frequently mentioned as affording testimony that the Sundarban, even up to the 16th century, was well cultivated; and the difficulty of identifying the mysterious names of the five Sundarban towns *Pacaculi*, *Cuipitavaz*, *Noldy*, *Dipuria* (or *Dapara*), and *Tiparia*, which are placed on the maps of De Barros, Blaeu, and Van den Broucke close to the coast-line, has inclined people to believe that they represent "lost towns." Now the first of these five towns, from its position, belongs to the Sundarban of the 24-Parganahs, and the second (*Cuipitaváz*) to that of Jessore District, whilst the remaining three lie east of it. But *Pacaculi* is either, as Col. Gastrell once suggested to me, a mistake for *Pacacuti*, *i. e.* *pakká kot'hí*,‡ a factory or warehouse, erected by some trading company, as we find several along the Húgli; or it stands for *Penchakuli*, the name of the tract opposite the present mouth of the *Damúdar*, or a little above the northern limit of the Sundarban. *Cuipitavaz* I have no hesitation to identify with *Khalífatábád*.§ Van den Broucke also places it correctly south-east of Jessore. *Noldy* is the town and mahall of *Noldi* (*Naldí*) on the *Noboganga*, east of Jessore, near the *Madhúmatí*. *Dipuria* is *Dapara*, or *Daspara*, south-east of *Báqirganj* station, near the right bank of the *Tittuliá*, still prominently marked on Rennell's map; and *Tiparia* cannot stand for anything else but the district of *Tiparah*, which is correctly placed north-east of *Daspara*.

\* *'Isá Khán*. Abul Fazl calls him 'king of Bhátí,' and says that twelve zamíndárs were under him. He was powerful enough to make war with Koch Bihár. *Vide Aín translation*, p. 342, note.

† Westland, Jessore Report, p. 231.

‡ Houses are either *kachchá* [mud-houses], or *pakká*, brick or stone-built.

§ The letter *f* often turns in Bangálí to *p*; hence *Khalífatábád* becomes *Kolípít-ábád*. Thus *Firúzpur* becomes *Perojepore*.



The old Portuguese and Dutch maps, therefore, prove nothing. They support the conclusion which I drew from Todar Mall's rent-roll, that in the 24-Parganahs and Jessore the northern limit of the Sundarban, omitting recent clearances, was in the fifteenth century much the same as it is now. But considerable progress must have been made in Báqirganj District, as we see from the numerous accessions, during that period, to the Imperial rent-roll.

Of other names given on old maps along the southern boundary of Bengal, we have (above Noldy) Nao Muluco (?), Buram (Borhun, in the 24-Parganahs); Maluco (Bhaluká, on the Kabadak, ?); west of them, Agrapara and Xore, (Agrapára and Dak'hineshor, north of Calcutta); and on the other side of the Húglí, Abegaca, which seems to be some Amgáchha, unless it is slightly misplaced and refers to Ambiká (Kalnah); Bernagar, which should be Barnagar, on the other side of the river below Xore; Betor (?) as on Blaeu's map, and Belor, (?) on that of De Barros. Van den Broucke's map gives, in Húglí District, Sjanabath (Jahán-ábád); Sjandereona (Chandrakoná); Cannacoel (Kánábul); Deniachali (Dhonek'háli); Caatgam (Sátgáon); Tripeni (Tripaní, the Muhammadan form of Tribení); Pandua (Paṇḍuah); Sjanegger; Basanderi (the old mahall Basandhari), where Van den Broucke makes the remark, '*t Bosh Sanderie alwaar Alexandre M. gestuyt werd*, 'the bush Sanderie where Alexander the Great was stopped!'

Again, along the lower Ganges the old maps have Bicarara (Bikram-púr, south of Dháká); Belhaldy; Angara (Angaria, at the confluence of the Kirtinásá and the Megna); Sornagam (Sunnárgáon); Dacca; Mularangue; Bunder (Bandar, 'harbour'); Nazirpur, mentioned above; Bulnei or Bulnee, ?; Guacala or Gucala, perhaps a mistake for Bacala; Noorkuly or Noricoel, as Van den Broucke gives it, (Noríkol, due south of Dháká, and a little south of the right bank of the Kirtinásá); Sundiva (Sondíp Island); Jugadia (Jogdiah in Noák'háli near the Little Phaní, mentioned in the '*Alamgír-námah* as an Imperial thánah, and often quoted as the seat of English and French factories in the eighteenth century); Traquetea, ?; Maua, or Moua, and Alvia, for which Van den Broucke gives Mava and Alvia, ?; Jefferi, on Van den Broucke's map, the same as Rennell's Jeffri, at the mouth of the Phaní, right bank.

The coast of Arakan on the maps of De Barros and Blaeu is broken up into numerous islands as the Sundarban coast: it looks as if some of them belonged to Bengal. Thus we find Bulua and Bacala, which must refer to Bhaluah in south Tiparah and Baklá. Chokuria may be identified with Chukuria, marked on modern maps opposite Maskal Island, on the Mamorí

\* As this place is marked on an island south-west of Dháká, it seems to be Múl-nadángí in the south of Char Mukundíá.





River, as thánah and saltgolah; but the names Irabu, Maoa (perhaps a mere repetition of the Maua given above), Santatoly, Orieton, are unknown to me.

Blaev's map (Pl. IV) and the Chart of the empire of the Grand Mogul by N. Sausson (A. D. 1652) give opposite Chatigam (Chittagong) a town, called Bengala or Bengola. Purchas (a compiler who never came to India) says in his 'Pilgrims,' "Gouro, the seat Royall, and Bengala are faire Cities. Of this, the Gulfe, sometimes called *Gangeticus*, now beareth name *Golfo di Bengala*." Rennell, in his 'Memoir,' mentions the town as being given "in some ancient maps and books of travels; but no traces of such a place exist." But he says that it is placed near the eastern branch of the Ganges, and that it may have been carried away by the river (Ganges?). Lately also, a writer in Mookerjee's Journal (Dec. 1872), Mr. H. J. Rainey, published an imaginative account of the submersion of this now lost city, which in his opinion had given name to the kingdom of Bengal. But the town is nowhere mentioned by Muhammadan historians, nor by Ibn Batútah, Cæsar Frederick, and Ralph Fitch who were in Chátgáon, nor by De Barros and Van den Broucke. The probability, therefore, is that no such town ever existed, and that the name was put on Blaev's map from Purchas's statement; or else the name 'Bengola' is a mere corruption of what we call a 'Bungalow' (بنگله, *bangalah*), or a 'Flagstaff Bungalow,' of which we find several marked on District maps of Chittagong along the Karanphúlí River, as early as on Rennell's chart. However, this mysterious town is not to be identified with the place 'Dianga' given by Van den Broucke half way between Chittagong and Rammoe (Rámú, or Rambú\*), because Dianga is the Dak'hindángá or the Bráhmandángá, both on the Sangú River, south of Chátgáon, where saltgolahs still exist.†

Regarding the State of Codavascam, which the old maps place east and north-east of Chátgáon, *vide* Wilford's Essay, As. Researches, Vol. XIV, p. 450.

The province of Chátgáon was no secure possession, and seems to have been alternately in the hands of the kings of Bengal, the Rájahs of Tiparah, and the kings of Arakan. In 750 A. H. (A. D. 1350), about which year Ibn Batútah was in Chátgáon,‡ it belonged to king Fakhruddin of Sunnargáon. That year falls within the reign of the Arakanese king Meng-di, who is said to have reigned from A. D. 1279 to 1385, or 106 years,§ when the king of Thu-ra-tan (Bengal), called Nga-pu-kheng, courted

\* The most south-easterly point to which the Mughuls advanced.

† The word 'dángá,' which occurs so often in geographical names in Bengal, signifies 'high land'.

‡ Called in Lee's translation سدكوان. Regarding Fakhruddin *vide* below.

§ *Vide* Sir A. P. Phayre's History of Arakan, Journal, A. S. Bengal, for 1844, p.

45. Thu-ra-tan Sir Arthur Phayre identifies with Sunnargáon.



his alliance. About 1407, again, the king Meng-tsau-mwun fled to Bengal, and witnessed the war between Rájah Káns and Jaunpúr. He was ultimately restored to his throne with the help of Bengal troops; but he became "tributary to the king of Thu-ra-tan, and from this time the coins of the Arakan kings bore on the reverse their names and titles in the Persian character. This custom was probably first made obligatory upon them as vassals; but they afterwards continued it when they had recovered their independence, and ruled the country as far as the Brahmaputra River. Meng-tsau-mwun, having got rid of his allies, meditated a change of capital."

In 1512, Chátgáon was conquered, according to the Ráj Málá,\* by the Rájah of Tiparah, who drove away Husain Sháh's garrison. Whether the Rájah of Tiparah kept it for any time is doubtful; for in 1517, "John de Sylvera was invited by the king of Arakan, and he appears to have gone to Chatigam, then a port of that king's dominions.†" Anyhow, we can now understand why Nuçrat Sháh, Husain Sháh's son, should have invaded Chátgáon;‡ but although popular belief ascribes to his invasion the first Muhammadan settlements in the District, it is clear from the preceding that his invasion cannot have been the first.

It is not known how the District was again lost; but during the troubles of Sher Sháh's revolution, the Mughul invasion, the aggressions of the Portuguese, and the Bengal Military Revolt, Chátgáon did not belong to Bengal. If, therefore, Todar Mall in 1582 included it in his rent-roll, he did so on the principle on which he included Kalinga Dandpát and Sirkár Rájahmandrí in the rent-roll of Orísá.§

### *The Eastern Frontier.*

The eastern frontier of Muhammadan Bengal extended from Sunnár-gáon and the Megna (but in Sháhjahán's reign, from the Phaní River over southern and western Tiparah) northward, and then passed to the east including the District of Silhat. The boundary passed along the southern slopes of the Jaintiah, Khasiah, and Gáro Hills to Máhall Sherpúr in northern

\* Journal, A. S. Bengal, Vol. XIX, for 1850, pp. 545, 546.

† Vide Sir A. Phayre's History of Pegu, J. A. S. B., 1873, pt. I, 127.

‡ For particulars vide my extract from the *Tárikh i Hamldi* in Journal, 1872, Part I, p. 336.

§ "From Satagam [Sátgáon-Húgli] I travelled by the country of the king of Tipara, with whom the Mogen [Mags] have almost continual warres. The Mogen which be of the kingdom of Recon [Rakhaing, Arakan] and Rame [Rámú], be stronger than the king of Tipara, so that Chatigan, or Porto Grando, is often times under the king of Recon." *Ralph Fitch.*

Muhammadan historians spell the word 'Rakhaing' رخنگ, *Rakhang*, or give the still shorter form رخ, *Rukh*, whence De Laët's "Roch, on the borders of Bengala."





Maimansingh to the right bank of the Brahmaputra near Chilmári, and from here along the river to Mahall Bhitárband, which formed the north-east frontier. The sirkárs that lay along the boundary were Sunnárgáon, Bázubá, Silhat, and G'horág'hát; and the neighbouring countries to the east were Tiparah, Kachhár (the old Hirumba), the territories of the independent Rájahs of the Jaintiah, Khasiah, and Gáro Hills, and, on the left bank of the Brahmaputra, the Karíbári Hills, the zamíndárs of which were the Rájahs of Sosang. They depended in reality on the powerful kingdom of Koch Hájo,\* the 'Azo' or 'Asoe' of old maps, which extended along the left bank of the Brahmaputra to Kám-rúp. In the Karíbári Hills, the Muhammadans possessed, opposite to Chilmári, the old frontier thánah Hatsilah, which Rennell still marks as 'Hautchella.' The north-eastern frontier was never absolutely fixed. Barítalah, on Van den Broucke's map *Bareithella*, was looked upon as a frontier town till the beginning of Aurang-zib's reign.

The invasions on the part of the Asamese were as numerous as the inroads of the Muhammadans into Asám, which had commenced under the successors of Bakhtyár Khiljí. During the reigns of Rájah Káns and his son, the Asamese under Chudangpha (A. D. 1414 to 1425) conquered north-eastern Bengal as far as the Karataya;† and as about the same time Jaunpúr was at the height of its power, successfully encroaching on the western frontier, and the Rájahs of Tiparah made likewise invasions,‡ we may assume that Bengal under the kings of the Káns dynasty was most circumscribed. With the restoration of the Ilyás Sháhí dynasty (about A. D. 1440) and the gradual downfall of Jaunpúr, Bengal recovered her ancient limits, and entered upon her most flourishing period. The invasion of Husain Sháh into Kám-rúp is well known;§ but Kám-rúp was only permanently annexed in 1637, when Gauhatti became the north-eastern frontier of Bengal.

Silhat, as we shall see below, was conquered in A. D. 1384, and the earliest inscription hitherto found there, belongs to the reign of Yúsuf Sháh (A. D. 1480). North-western Silhat had the name of Láúḍ, or Láúr, and the thánah which the Muhammadans established there, was under the commander of the 'Íqlím Mu'azzamábád,' 'the territory of Mu'azzamábád,' also called 'Mahmúdábád.' The exact extent of Mu'azzamábád is still unknown; but the name occurs on coins and on Sunnárgáon inscriptions, once in conjunction with Láúr, and once with Tiparah, and it seems, therefore, as if the "iqlím" extended from the Megna to north-eastern Maimansingh and

\* *Vide* Journal, A. S. Bengal, Part I, 1872, p. 53.

† So according to the *Asám Búranjí*; *vide* Useful Tables, p. 273.

‡ *Rájmálá*, J. A. S. B., XIX, 1850, p. 542.

§ J. A. S. B., 1872, Part I, pp. 79, 335.



the right bank of the Surmá. In the *A'in*, we find, indeed, under Sirkár Sunnargáon, a Mahall Mu'azzampúr, the chief town of which lies between the Brahmaputra and the Lak'hia and bears the same name. The present inhabitants, as Dr. Wise tells me, know nothing of its ancient renown; and the only old building is a ruinous dargáh, called after a saint Sháh Langar, the impression of whose foot draws crowds of pilgrims about the time of the I'd ulfiṭr festival. The saint is said to have come from Egypt.

The thánah Láur is also mentioned in the *A'in* as a Mahall of Sirkár Silhaṭ, which consisted of Partábgarh; Panchkhand; Banyáchang; Bájúá Bayájú (?); Jaintiá; Haweli Silhaṭ; Satrk'handal; Láúd;\* and Harinagar. The author of the *Haft Iqlim* calls Silhaṭ repeatedly سريہاٹ *Sríhaṭ*, and this form explains perhaps the 'Reino Sirote,' which De Barros and Blaeu give instead of 'Silhaṭ' (*vide* Pl. IV). The town of Sirote is correctly placed on the right bank of the Surmá, which leaves no doubt as to the identity of both names.

Kámrúp, which also appears under the names of Kámrúd, Kámrú, and Kámrú, is often mentioned together with Kámatá.† The Brahmaputra which Ibn Baṭúṭah calls the 'Blue River', is correctly described by the old traveller as coming from the mountains of Kámrúp. De Barros, however, and Blaeu give the river the name of Caor, and show it as flowing from the Reino de Caor, north of Comota and Sirote. Wilford identifies Caor with "Goḍa or Gaur, *i. e.* Gorgáon," meaning G'hargáon, the capital of A'sám. But G'hargáon (which is the correct spelling) was only built by Chu-klunpha, between A. D. 1549 and 1563, *i. e.* at a time when the materials had long been sent to Europe from which De Barros in Lisbon wrote his book. It seems, therefore, more natural to compare 'Caor' either with 'Gaur,' the old name of northern Silhaṭ, and which under the form of Gor is placed by Blaeu north of Bengal, or with the name of the Gáros who inhabit the hills near the bend of the Brahmaputra.‡

The south-east frontier was Tiparah, or Tripura, spelt on old Muhammadan inscriptions *Tipúrah*, whence perhaps the form Tipora given by De Barros and Blaeu. Abulfazl, in the *A'in i Akbari*, says—"Tiparah is independent; its king is Bijai Mánik. The kings all bear the name of Mánik,§

\* So at least according to some MSS. *Vide* my text edition, p. 406, where سرکهندل is a misprint for سترکهندل. Láur lies at the foot of the hills.

† For Kámatá *vide* below. Husain Sháh is said to have invaded Kámrúp and Kámatá; and the *A'in* says, Kámrúp and Kámatá are in the possession of the Rájah Koch Bihár.

‡ Regarding Wilford's identification of Sirote, *vide* Asiatic Researches, XIV, pp. 387, 436. The places which Blaeu gives between Gor and Caor, as Kanduana, Mewat, &c., are mentioned below.

§ According to the Rájmálá, the kings of Gaur had conferred this title on the Tiparah Rájahs. It is impossible to reconcile the discrepancy between the Rájmálá and the *A'in* as regards the time when Bijai Mánik reigned. According to the *A'in*





and the nobles that of Náráyan." The military power was estimated at 200,000 foot and 1,000 elephants; and numerous invasions of Silhat and Sunnārgáon by the Rájahs of Tiparah are mentioned in the Rájmálá. The old capital was Udaipúr, or Rángámáti, on the left bank of the Gúmti. Hence Van den Broucke speaks of 'Oedapoer and Tipera;'\* but on his map he places between Tipera and the Brahmaputra, above Bolua, the "Ryk van Udesse," which is not marked on the maps of De Barros and Blaeu. As he does not mention Udesse in his text, the name is either a mistake for Udaipúr, or he has been misled by his countryman De Laët, who says, "Udessa, or Udeza, whose metropolis is Jokanat or Jekanat, the furthest province of this empire to the eastward, is adjacent to the Mag kingdom, whose inhabitants are most ferocious barbarians," and who thus places Orísá (Odesá) and Jagarnáth near Arakan.

The western and southern portions of Tiparah are included in Todar Mall's rent-roll in Sirkár Sunnārgáon; but they were only conquered, according to Grant, in Sháhjahán's reign; and in A. D. 1728, we hear of a re-conquest, when the district was placed on the rent-roll under the name of Raushanábád.

Before going further, I have a few words to say on the country of Jájnagar, which Stewart, Stirling, Dowson, and Thomas agree in identifying with Tiparah. Stewart and Dowson, however, also apply the name to a portion of Orísá, and compare the word with the name of the town of Jájpúr, north-east of Katak, on the Baitarani. Jájnagar is mentioned as a country full of wild elephants (مرغزوفيل) in the *Ṭabaqát i Náçirí*, and the two *Tárikh i Fírúz Sháhi*s, *i. e.* up to about A. D. 1440, after which the name disappears. It also occurs in the *Aín*; but the passage refers to the reign of Hoshang of Málwah (A. D., 1405 to 1434).†

It is first mentioned as lying, together with Bang, Kámrúd, and Tirhut, near the kingdom of Lak'hnautí;‡ and when Tughán Khán ('Izzuddín Abul Fath Tughril) invaded Jájnagar, he left Lak'hnautí city in Shawwál, 641, and arrived after about a month, on the 6th Zí Qa'dah, at Katásan, the frontier of Jájnagar.§ In the following year, 642 [A. D., 1244], the Rái of Jájnagar invades the kingdom of Lak'hnautí, and first seizes on Lak'hnor, which above was identified with Rápha (west of the Húglí), where he kills the jágirdár Fakhruddín Lághari, and then marches on Lak'hnautí.

he would have reigned towards the end of the 16th century; but the Rájmálá places his reign much earlier. *Journal*, Vol. XIX, for 1850, p. 546.

\* "The countries of Oedapoer and Tiparah are sometimes independent, sometimes under the great Mogul, and sometimes even under the king of Arakan."

† It may be that Da k'hin historians use the term to a later period.

‡ *Tab. Náçirí*, p. 163.

§ *Loc. cit.*, p. 244. Katásan has not been identified. The MSS. have also Katás, and Katásín.



This remark would seem to shew that, in the opinion of the author of the *Ṭabaqát*, *Jájnagar* lay somewhere west or south-west of the Bardwán and Húglí Districts, *i. e.* in Jhárkhand, or Chutiá Nágpúr.

The next invasion, on a large scale, was undertaken by the Emperor Balban, who in his pursuit of Sultán Mughís, about A. D. 1280, marched from Lak'hnautí to Sunnárgáon, the independent Rái of which makes himself responsible not to let Mughís escape either by land or by water. From Sunnárgáon,\* Balban arrives, after a march of 60 or 70 *kos*, at the confines of *Jájnagar*, where Mughís is surprised and killed.

From this remark by Baraní, Stewart, Stirling, Thomas, and Dowson† conclude that *Jájnagar* corresponds to Tiparah; and the eastern parts of Hill Tiparah certainly lie about 70 *kos* from Sunnárgáon. The *Rájmálá*, however, does not state that Tiparah had the name of *Jájnagar*.

*Jájnagar* is again mentioned during the reign of Ghiyásuddín Tughluq, when Ulugh Khán, in 1323 A. D., invades Talinga, *Jájnagar*, and Bedar;‡ and lastly, when Firúz Sháh, after his second unsuccessful invasion of Bengal to conquer Sikandar, returns, in 1360, from Hazrat Papduah to Zafarábád and Jaunpúr,§ where he stays during the rainy season. He then marches over Bihár to *Jájnagar*; arrives at Satgarh (?), the Rái of which retreats; then comes to Báránasí, the residence of a great Rái; crosses the Mahindri, and goes for some distance into Talinga, to which country the Rái had fled. Firúz Sháh then retreats, passes through the country of Rái Parihán [Bir Bhán Deo, *Lucknow Edition*], and arrives in Padmáwatí and Baramtalá, great fields for elephants, and returns quickly to Karaí.||

Lastly, in the *Aín* (my text edition, p. 472, l. 6), Hoshang of Málwah goes in disguise to *Jájnagar*, in order to obtain elephants.

In these passages it is clear that *Jájnagar* represents a country between Talinga and Bihár, or, as expressed in the *Ṭabaqát*, west of Rápha, *i. e.*, the

\* Baraní, p. 87. The *Bibl. Indica* Edition has Hájínagar, *Jájnagar*, and (once) *Jájnagar*.

† History of India, Vol. III, pp. 112, 113. The *Bibl. Indica* Edition of Badáoní, I, p. 129, calls Mughís wrongly Mu'izz, and says that he had gone towards *Jájnagar* and Tárkílah (or Nárkílah, as the *Lucknow* edition of Badáoní has).

‡ Badáoní, I, 223. Dowson, III, 234. Baraní, 450.

§ Zafarábád, which is so often mentioned by Muhammadan historians, lies on the right bank of the Gúmtí, a little below Jaunpúr, which lies on the left bank. The maps give, of course, Jaffurabad.

|| Badáoní, I, 247. Dowson, III, 312 to 316. Dowson has Banárasí, for Báránasí; and Firishtah (*Lucknow* edition, p. 147) has 'Banáras, which is the residence of the Rái of *Jájnagar*.'

Katak is called in the *Aín* 'Katak Banáras;' and from the account translated by Dowson from 'Afif it is clear that south-western Orísá is meant, although the comparison of *Jájnagar* and *Jájpúr* may be redundant. Rennell in his *Bengal Atlas* (Map VII) gives a Baramtalá in Singhbhúm, near northern Mayurbhanj.



wild districts of western Orisá, Chutiá Nágpúr, and the eastern portions of the Central Provinces, of which Ratanpúr, Bastar, and Sirguja are also mentioned in the *Aín* as huping places for wild elephants. But it is remarkable that Baraní, in relating Balban's expedition, places Jájnaḡar 70 *kos* beyond Sunnárḡaon, whilst in his account of Tughluq Sháh's reign he gives the same name to a district near Talinga; and we are forced either to believe that there were two Jájnaḡars, one famous for elephants near south-western Bengal (*Ṭabaqát i Náḡirí*, Baraní, Fírúزشáhí, *Aín*), and another in Tiparah or south-eastern Bengal (on the testimony of a single passage in Baraní); or to assume that there was in reality only one Jájnaḡar, bordering on south-western Bengal, and that Baraní in the above single passage wrote Sunnárḡaon by mistake for Sátḡaon,\* which would remove all difficulties.

### *The Northern Frontier.*

From Bhítarband, near the bend of the Brahmaputra, and in later times from Gauḡhatti in Kámrúp over K'hontag'hát, the frontier passed along the southern portions of Koch Bihár to Mahall Pátḡaon, or Pátḡrám (west of Koch Bihár), which is mentioned by Mughul historians as the frontier-town in the extreme north, and from there along the foot of the hills and forests of Sikkim and Nepál to the northern portions of Púrniáh District. Thus by far the greater portion of what is now-a-days called the Koch Bihár Division, did not belong to Bengal.

The Sirkárs along the northern frontier were G'horág'hát, Panjrah, Tájpúr, and Púrniáh.

The inhabitants of northern Bengal according to the *Ṭabaqát i Náḡirí* were the Koch, Mech, and Thárú tribes, whose Mongolian features struck the first invaders as peculiar.†

The Rájahs of Northern Bengal were powerful enough to preserve a semi-independence in spite of the numerous invasions from the time of Bakhtyár Khiljí, when Debkoṭ, near Dínájpúr, was looked upon as the most important military station towards the north.

During the fifteenth century, the tract north of Rangpúr was in the hands of the Rájahs of K á m a t á (কামত্যা), to which country passing allusion was made above. The kingdom is prominently marked as 'Reino de Comotah,' or Comotay, on the maps of De Barros and Blaeu (Pl. IV). The town of

\* Baraní's statement of the distance of 70 *kos* would admirably suit Sátḡaon; it would bring us to Mayurbhanj and western Chutiá Nágpúr.

† For 'Thárú' Stewart has *Neharu*, but there can be no doubt that the author of the *Ṭabaqát* means the Thárús of Mithila. *Vide* Dalton, *Ethnology of Bengal*, p. 126; J. A. S. B., 1872, Part I, p. 66.

The *Pádisháhnámah* says of the Asamese also that they resemble in features the Qaráqalpáks of southern Siberia.



Kámatá, or Kámatápúr, lay on the eastern bank of the Darlá river, which flows south-west of the town of Koch Bihár, and joins the Brahmaputra near Bagwah. The river near its confluence with the Brahmaputra, separates mahall Bhítarband from Bâhirband. The town itself and the Darlá river are correctly marked on the old maps. Buchanan estimated the circumference of Kámatápúr at nineteen miles; the palace, as in the case of Burmese and Chinese towns, stands in the centre. History informs us that Kámatá was invaded, about 1498 A. D., by Husain Sháh, and legends state that the town was destroyed and Nilamba, the last Kámatá Rájah, was taken prisoner. He escaped, however, and disappeared; but people believe that at some time in future he will be restored.

The Kámatá family was succeeded by the Koch dynasty, to which the present Mahárájá of Koch Bihár belongs. The new Rájás secured their possessions by erecting along the boundary a line of fortifications, many of which are still in excellent preservation.

The prevalence of human sacrifices in Koch Bihár is known from the *Ain*. The *Haft Iqlím* has the following: "There is a cave in this country, which, according to the belief of the people, is the residence of a Deo. The name of the Deo is *Ái*, and the people are zealous in their worship. Once a year they have a feast, when they kill all sorts of animals found in the country, believing that the meritoriousness of the slaughter comes from *Ái*. They likewise kill on the same day the Bhogís, who are a class of men that have devoted their lives to *Ái*, saying that *Ái* has called them. From the time they become Bhogís, they may do what they like; every woman is at their command, but after one year they are killed."

The first European traveller that visited Koch Bihár was Ralph Fitch. He says: "I went from Bengala into the country of Couche or Quichen, which lies 25 days' journey northwards from Tanda. The king is a Gentile; his name is Suckel Counse;\* his country is great and lieth not far from Cauchin China: for they say they have pepper from thence. The port is called Cacchegate.† All the country is set with bamboos or canes made sharp at both endes and driven into the earth, and they can let in the water and drown the ground above knee deep, so that men nor horses can pass. They poison all the waters if any wars be. Here they have much silk and musk and cloth made of cotton. The people have ears which be marvelous great, of a span long, which they draw out in length by devises when they be young. There they be all Gentiles, and they will kill nothing. They have

\* Shukl Gosájn; vide my essay on Koch Bihár and Asám, Journal, As. Soc. Bengal, 1872, Part I, p. 53.

† I. e. the place where the merchants from China meet. Cacchegate is Chichá-kotá, north of the town of Koch Bihár and south of Baksa Fort, Long. 89° 35', in the Bengal Dúárs. It is now British.



hospitals for sheep, goats, dogs, cats, birds, and for all living creatures. When they be old and lame, they keep them until they die. If a man catch or buy any quick thing in other places and bring it thither, they will give him money for it or other victuals, and keep it in their hospitals or let it go. They will give meat to the ants. Their small money is almonds, which often times they use to eat."

As Ralph Fitch mentions Chichákoṭá, and the 'Ālamgírnámah Kanthalbári,\* as belonging to the Koch Bihár, it follows that portions of the Dúárs must have once belonged to Koch Bihár.

Aurangzib's army under Mír Jumlah took Koch Bihár on the 19th December, 1661, when the town was called 'Ālamgírnagar,† a name which has not come into use; and the imperial collectors expected to raise a revenue of eight lák'hs of rupees, whilst in Prince Shujá's rentroll of 1658 Koch Bihár is put down as yielding Rs. 3,27,794.

On Van den Broucke's map, the whole Himálaya tract, from northern Bihár to Ásám, is called 'T Ryk van Ragiawarra,' or the realm of Rájáwará and in the text he says, that "Ragiawara consists of several separate countries, which sometimes fight the Great Mogul, and at other times are forced to submit." Of these several countries he mentions on the map 'T Ryk van Morang and 'T Ryk van Jesval, which latter name is also given on Blaeu's map and will be remarked on below.

The Morang was entered by Mughul troops in the beginning of Aurangzib's reign. We first hear of an expedition led by Mírzá Khán, Faujdár of Darbhanga, and Iláh Virdí Khán, Faujdár of Gorák'hpúr, against the refractory zamíndár of Morang (beginning of 1075, or end of A. D. 1664). Mírzá Khán died during the expedition; but Iláh Virdí Khán returned with fourteen wild elephants and nine presentation elephants.‡ In the end of 1079 (beginning of 1669), Ma'çúm Khán reported that a false Shujá' had appeared in Morang and had caused disturbances there, and Ibráhím Khán and Fidái Khán received orders to capture him wherever he shewed himself, and to send his head to Court. Lastly, in 1087 (beginning of 1676), we hear of a conquest of Morang, but no particulars are given.

\* West of Kanthalbári, the maps give a place called Mogulmurri [Mughulmárf], evidently the scene of a fight with Mughul troops. Another Mughulmárf lies between Bardwán and Jahánábád; a third between Medinípúr and Jalesar, where Akbar's troops defeated Dáúd Sháh (Ain translation, p. 376); and a fourth, eight miles north of Medinípúr.

† Thánah Sangrámgarh, one of Aurangzib's frontier thánahs near Noák'hálí, had received the same name in allusion to the title of the emperor.

‡ 'Ālamgírnámah, pp. 850, 875. Maásir i 'Ālamgírí, pp. 64, 150.



### Blaev's Map of Bengal and of the Mughul Empire.

The map of Upper India by William and John Blaev (Pl. IV) is taken from their "Theatrum Orbis Terrarum," Amsterdam, 1645 to 1650, Vol. II,\* and is based upon the Portuguese and Dutch charts that existed at the time, and upon the descriptions of European travellers. As far as Bengal is concerned, it is a reprint of De Barros' map, and represents, therefore, the knowledge which European geographers had of Bengal about 1540. In point of accuracy it is much inferior to Van den Broucke's map of 1660,† given in Valentyn's work. But the map is of great interest, as it helps us to unravel the difficulties in Terry's enumeration of the provinces of Bengal and other portions of the Dihli empire,‡ which has also been followed by the Dutch traveller De Laët in his "India Vera" (Amsterdam, 1631), and of which traces may still be found on Van den Broucke's map. It is with a view to explain the extraordinary configuration of Bengal on the old maps that I have given the present chapter a place in this essay.

From a glance at the map, it will be seen that our early geographers had no information of the extent and situation of the countries which we now-a-days call the Central Provinces and Chutiá Nágpúr. Hence Gwáliár, Narwar, and (on Van den Broucke's map) Málwá, bound Bengal on the west; the Santál mountains are continued eastwards to meet the Ásám mountain-chains, and places belonging to the Central Provinces have been put north of Bengal.

Terry enumerates the following provinces as belonging to the Mughul empire—1. *Candahore*, Qandahár; 2. *Cabul*; 3. *Multan*; 4. *Haiacan*, Hájikán, a sirkár of Sindh; 5. *Buckor*, Bhakkar; 6. *Tatta*; 7. *Soret with Jonagar*, Sorat'h with Júnágarh; 8. *Jessélmeere*; 9. *Attok*; 10. *Peniab*, Panjáb; 11. *Chishmeere*, Kashmír; 12. *Banchish*, "the chief city is called *Bishur*; it lyeth east, somewhat southerly from Chishmeere, from which it is divided by the River Indus." Here we have the first misplacement. Terry means Bangash and Bajor (Sawád, Swat); but for *East*, he should have said *West*.

\* Capt. J. Waterhouse drew my attention to a copy of this work in the Library of the As. Society.

† Matthæus Van den Broucke was Land-Voogd, or governor, of Choromandel, which included Bengal, from 1658 to 1664, during which time he compiled the map in the Vth Volume of the 'Beschryving van Choromandel' in François Valentyn's 'Oud en Nieuw Oost Indien', Amsterdam, 1728. (Library, As. Soc. Bengal, No. 2266.)

‡ Edward Terry was chaplain to Sir Thomas Row, the Ambassador to Jahángir's Court, and was later Rector of the Church at Greenford, Middlesex. He presented his 'Voyage to East India,' in 1622, shortly after his return to England, to the then Prince of Wales; but he only published it in 1655, when he was sixty-four years old.



13. *Jangapore*, "the chief city so called; it lieth upon the River *Kaul*, one of those five rivers which water *Peniab*." (?) De Laët has 'Jengapor or Jenupar,' between Lahore and Agra. 14. *Jenba*, east of *Peniab*, Chamba. 15. *Dellee*,\* *Dihli*. 16. *Bando*; 'it confineth Agra to the west.' This is *Bándhú*, or *Bándhúgarh*, south-east of *Agrah*. 17. *Malwa*; 18. *Chitor*; 19. *Gujarat*; 20. *Chandis*, *Khándesh*; 21. *Berar*, with the chief city *Shapore*;† 22. *Narwar*; 23. *Gwalior*; 24. *Agra*; 25. *Sambal*, *Sambhal*, or *Murádábád* District. 26. "*Bakar*, the chief city called *Bikaneer*, it lyeth on the west side of the River *Ganges*." The whole remark seems to be erroneous. 27. *Nagracot*, *Nagarkot* or *Kángrah*. 28. \**Siba*, "the chief city is called *Hardware*.‡" 29. *Kakares*, the principal cities are called *Dekalee* and *Púrhola*." Terry means the *Gakk'har* District, the chief cities of which were *Dángalí* and *Pharwálah*; *vide* *Áin* translation, p. 621. Terry also remarks that the *Caucasus* (*Himá-laya*) divides *Kakares* from *Tartaria*, which accounts for its northern position on *Blaev's* map. 30. *Gor*, "the chief city so called; it is full of mountains; the River *Sersily*, a tributary unto *Ganges*, has its beginning in it." *Vide* 32.

31. *Pitan*, "the chief city so called; the River *Canda* waters it, and falls into the *Ganges* in the confines thereof." This is *Paithán*, the form used by *Abulfazl* for *Paṭhán*, or *Paṭhánkot*. Terry evidently means the whole hill tract of the *Sirmúr* range, as far as the *Alaknandá*. It is, however, possible that he meant the *Markandá*; but this river does not flow into the *Ganges*. The error in the position of *Pitan* is remarkable, as Terry, DeLaët, and *Blaev* give *Temmerý* (a Dutch spelling for *Dhamerí*, the old name of *Núrpúr*, near *Paṭhánkot*) between the *Rávi* and *Nagarkot* (*Kángrah*).

32. *Kanduana*, "the chief city is called *Karhakatenka*; the River *Sersily* parts it from *Pitan*. This and *Gor* are the north-east bounds of this Monarchy." There can be no doubt that *Kanduana* is *Gondwánah* (*Central Provinces*), of which the capital is *Garha-Katanga* (*Jabalpúr*); *vide* *Áin* translation, p. 367. If *Gor* is the north-east boundary of the empire, it is the *Gaur* of *Silhat*, mentioned above, or the *Gáro Hills*. *Sersily* is a misprint for *Sersity*, the *Saráswatí*, which after the *Jamuná* is the principal (legendary)

\* "Which signifies an Heart, and is seated in the heart of the Mogul's territories." Terry. This unfortunate etymology shews however that Terry knew some Persian, because he cleverly disposes of the final *yá*. Similarly, he derives 'Khusrau,' from خوش and رو; and 'Sultán Khurram' from كرم *karam*, liberality!

† *Sháhpúr*, built by Sultán Murád, Akbar's son, six *kos* south of *Bálápúr*, now in ruins.

‡ I do not know whether the country near *Haridwár* was ever called *Sibá*. In the *Áin*, a *parganah* of the *Bísat Jálándhar Dúáb* is called *Sibah*.



tributary of the Ganges. The map follows the legend and makes the Saraswatí flow into the Ganges near Helobass (Iláhbás, the old name of Iláhábád).<sup>\*</sup> De Laët increases the confusion by calling the Sersily 'Perselis.' But the passage need no longer exercise commentators. Blaeu's map clearly shows how erroneously the early geographers arranged the provinces.

33. *Patna*, "the chief city so called; the River Ganges bounds it on the west; Sersily on the east; it is a very fertile Province."

34. *Jesual*, "the chief city is called Raiapore; it lieth east of *Patna*." Van den Broucke puts Jesual east of Morang; and Blaeu's map marks it as a country for elephants. It seems, therefore, that Ráipár in the Central Provinces is meant, the elephant country *par excellence*, though the name 'Jesual' is not clear to me.

35. *Mewat*, "the chief city is called *Narnol*; it is very mountainous." This is Mewát, south-west of Dihli, with Nárnol. I am at a loss to understand how Mewát could have been placed so far away from Dihli; but Blaeu's map shows why Terry and De Laët mention it here.<sup>\*</sup> The error was not even detected by Van den Broucké, who places 'T Ryk van Mewat east of the Brahmaputra, south of 'Cos Assam.'<sup>†</sup>

36. *Udessa*, "the chief city called *Jekanat*; it is the most remote part east of this empire." De Laët says: It is the furthest province of this empire to the eastward, is adjacent to the Maug kingdom, whose inhabitants are most ferocious barbarians." DeBarros and Blaeu have avoided this mistake; Van den Broucke, however, places 'T Ryk van Udesse north of Bollua (Bhaluah), between Tiparah and the Brahmaputra. But Orísá and Jagannát'h are meant. The spelling Udessa is clearly a transliteration of اوديسه, Uḍesá, and DeLaët has overlooked the identity of 'Orisa' and 'Udessa.'

### 37. *Bengala*.

It would take me too far from my subject, were I to enter on the identification of the places in western India on Blaeu's map. I hope to do so at a future period, or would rather leave the task to Mr. E. Lethbridge, who has lately published valuable extracts from De Laët's work in the Calcutta Review.

<sup>\*</sup> According to the legend, the Saraswati, which is lost in the sand east of Bhatinda District, joins the Ganges below the ground at Iláhábád. Hence at Triboní and other places in Bengal, wherever two rivers leave the Ganges, we find the names Saraswati and Jamuná repeated.

<sup>†</sup> The London edition of 1655 has 'Jesuat.' De Laët has "Jesual, whose metropolis is Raiapore or Ragapore, lies to the east of Patna, and north-west of Bengala."

<sup>‡</sup> Asám is often called Koch Asám.



## PART II.—HISTORICAL.

The Muhammadan period of the history of Bengal may be conveniently divided into five parts—

I. The 'Initial period,' or the reigns of the governors of Lak'hnauti appointed by the Dihli sovereigns, from the conquest of Bengal by Muhammad Bakhtyár Khiljí, A. D. 1203 to 1338 A. D.

II. The period of the independent kings of Bengal, from 1338 to 1538.

III. The period of the kings of Sher Sháh's family and their Afghán successors, from 1538 to 1576.

IV. The Mughul period, from 1576 to 1740.

V. The Nawábí period, from the accession of 'Alí Virdí Khán, in 1740, to the transfer of Bengal to the E. I. Company.

In the following pages, I shall principally treat of the first and second periods.

## I.

## THE INITIAL PERIOD (1203 TO 1338, A. D.)

The first period has been almost exhaustively described by Mr. E. Thomas in his 'Initial Coinage of Bengal,' published in the Journal for 1867, in which he details the results of his examination of selections made from 13,500 pieces of silver, accidentally found in Koch Bihár in August, 1863. I can, therefore, with regard to this period, merely give a few interesting inscriptions which have since turned up, and note a few coins—second gleanings from the Koch Bihár *trouvaille*—which are in the Society's cabinet.

Of the following inscriptions belonging to the Initial Period, one was received from General Cunningham, and the others from Mr. Broadley, who handed over to the Society in all twenty-two rubbings, which I have deciphered and translated. The original stones are either attached to old public buildings in the town of Bihár, or are preserved in the Museum of that place.\*

No. ~~VI~~<sup>I</sup>. The Tughril Inscription of Bihár. [B. C.]

امر ببناء هذه العمارة في ايام مملكة المجلس البعالي خان الاعظم  
خاقان المعظم عز الحق و الدين غياث الاسلام والمسلمين مغيب الملوك  
والسلطين ابي الفتح طغرل السلطاني خلد الله ملكه العبد مبارك خان  
الخازن تقبل الله منه في المحرم سنة اربعين و ستمائة //

\* Together with the rubbings, Mr. Broadley made over to the Society readings of several early Muhammadan coins of importance, and also a few notes on the Muhammadan buildings of the town of Bihár. The coins have since passed into the collection of Col. Guthrie, and have been published by Mr. E. Thomas in his 'Second Part of the Initial Coinage of Bengal' (about to be reproduced in this Journal). The "notes"



This building was ordered to be erected during the days of the reign of the Majlis i 'Alí, the great Khán, the exalted Kháqán, 'Izzul haq waddín, the help of Islám and the Muslims, the helper of princes and kings, Abul Fath Tughril, the Royal, may God perpetuate his reign! The slave, Mubárah Khán, the Treasurer,—may God grant acceptance!

In the month of Muharram, 640, [July, 1242, A.D.]

The inscription is a large slab of basalt, and is at present in the Bihár Museum. It was found let into brick work on the north side of the great Dargáh, to protect the doorway from rain. A photozincograph of it was published by me in this Journal for 1871, Pt. I, Pl. vii.

It is of interest to remark that South Bihár was under the Lak'hnautí governors from Bakhtyár Khiljí's time.

Tughril in 631 (A. D. 1233-34) succeeded Saifuddín Aibak as governor of Lak'hnautí, in which office he continued till the 5th Zí Qa'dah 642 (or 4th April, 1245), on which day he was forced to cede his office to Qamaruddín Timur Khán. Tughril was appointed to Audh; and Timur Khán remained in Lak'hnautí till 29th Shawwál, 644, (or 9th March, 1247) on which day both he and Tughril died.\*

The following are the governors of Bengal from Saifuddín Aibak to Bughrá Khán. The dates differ slightly from Mr. Thomas's list on p. 8 of his 'Chronicles.'

Saifuddín Aibak. Dies at Lak'hnautí in 631. *Tabq.*, p. 239.

'Izzuddín Abul Fath Tughril Tughán Khán, governor from 631 to 5th Zí Qa'dah, 642. *Tabq.*, p. 245. He withdraws to Audh, and dies on the 29th Shawwál, 644.

Qamaruddín Timur Khán, governor from 5th Zí Qa'dah, 642, to 29th Shawwál, 644, when he, too, dies. *Tabq.*, p. 246.

Ikhtiyáruddín Yúzbak Tughril Khán, proclaims himself king under the title of Sultán Mughisuddín. Perishes in Kámrúp. *Tabq.*, p. 263. No dates are given.

Jaláluddín Mas'úd, Malik Jání Khiljí Khán, becomes governor on the 18th Zí Qa'dah, 656 (or 17th Nov., 1258). *Tabq.*, pp. 206, 225.

'Izzuddín Balban, was governor in 657, in which year he was attacked by Tájuddín Arsalán Khán Sanjar i Khwárazmí, who, however, was captured or killed by 'Izzuddín. *Tabq.*, p. 267.†

are of little value, and are moreover incomplete, so that I can only give my readings and translations of the Bihár inscriptions. They are marked 'B. C.' (Bihár Collection.)

\* *Tabaqát i Náqirí*, pp. 245, 246, where Tughril is called Tughril Tughán Khán. Hence the *tárikh* on p. 246 is wrong, and for *sín* we have to read *mím*. 'Tughril' signifies a kind of falcon or hawk, and *tughril shudan*, like *shunqár shudan*, means 'to die.' 'Shunqár' also is a kind of falcon.

† Hence Tájuddín Arsalán Khán should not be put among the governors of Bengal.



Muhammad Arsalán Tatar Khán, son of Arsalán Khán Sanjar. He had been for some time governor, when the emperor Balban ascended the throne (664). *Baraní*, p. 66. After a few years he was succeeded by

Tughríl, who proclaimed himself king under the name of Sultán Mughíṣuddín. His fate has been mentioned above. No dates are given.

Bughrá Khán, Náṣiruddín Mahmúd, second son of emperor Balban.

No. 2. *The Bárahdarí Inscription of Bihár.* [B. C.]

This inscription also belongs to the time of the early governors of Bengal; but unfortunately the first half with the name of the governor is wanting. Its date however, A. H. 663, shews that it belongs to the time of Muhammad Arsalán Tatar Khán, governor of Bengal in the end of the reign of Náṣiruddín Mahmúd of Dihlí. The inscription was found in the yard facing the shrine of Sháh Fazlullah, Bárahdarí Mahallah, Bihár.

• • • • • الله و امارته و ابقى في ديار الممالك عمارته ببناء هذه المقبرة المتبركة شهر سنة  
• • • • • العدل الراقية المخصوص بعناية الرحمن • • • سلطان شاه نور اللهم توبه و  
بيض غرته و اجعل قبره روضة من رياض الجنان و لا تجعل حفرة من حفر النيران  
في ليلة الاحد الثامن عشر من جمادى الاولى سنة ثلاث و ستين و ستمائة و المعمار  
عبد هما الممنون بانعامهما مسجد الكابلي ॥

• • may God (perpetuate) his rule and governorship, and may He cause his edifice to remain in the realm • • by the erection of this blessed tomb in the months of the year • • Sultán Sháh, (O God, illuminate his grave, and whiten his forehead, and make his grave a garden of the gardens of Paradise, but do not make it a pit of the pits of fire!). On Saturday evening, the 18th Jumáda I, 663. The architect is their slave, who is obliged by their rewards, Majd of Kábul. [8th March, 1265.]

No. 3. *The Kai Káús Inscription of Kagol.* Pl. V, Nos. 1 and 2.

A rubbing of this inscription was received from General Cunningham. Its date is, curious to say, the same as that of the Kai Káús inscription of Gangarámpúr, published by me in the Journal, for 1872, p. 103. Mr. Thomas has published coins of this king, bearing the dates 691, 693, 694, 695 (*Chronicles*, p. 149), and the cabinet of the As. Soc. of Bengal contains two clear specimens of 691, and 696 (*Lak'hnaúti mint*).

The inscription is—

وقو ( ؟ ) لبناء هذا المسجد الجامع في عهد الدولة السلطان المعظم  
مالك رقاب الامم مولوي ملوك الترك و العجم صاحب التاج و الخاتم  
ركن الدنيا • • • • • س شاه السلطان بن سلطان بن سلطان يمين خليفة  
الله ناصر امير المؤمنين في نوبت الخان الاعظم خاقان المعظم اختيار  
الحق و الدين خان خان الشرق و الصين سكندر الثاني فيروز ايندگين السلطان

\* The text has a dual.



خَلَّدَ اللَّهُ دَوْلَتَهُ \* \* \* \* \* الْمُظَفَّرُ الْمَذْصُورُ الْغَازِي ضِيَاءُ الدَّوْلَةِ وَالِدَيْنِ  
الْخَانِ إِيَادَامَ اللَّهُ دَوْلَتَهُ وَزَادَ خَيْرَهُ فِي الْغُرَّةِ مِنَ الْمُحَرَّمِ سَنَةِ سَبْعٍ  
وَتَسْعِينَ وَسِتْمِائَةٍ ۥ

This Jāmi' Mosque was built during the reign of the great Sultān, the owner of the necks of nations, the master of the princes of the Turks and the Persians, the lord of the crown and the signet, Ruknuddunyā waddīn [Kai Káu] s Sháh, the king, son of a king who was the son of a king; the right hand of God's Viceregent, the helper of the Commander of the Faithful, and during the governorship of the great Khán, the exalted Kháqān, Ikhtiyār ul haq waddīn, the Khán of the Kháns of the East and of China, the second Alexander, Fírúz Aitigin Sultān, (may God perpetuate his rule!) \*\* [by] the victorious, the invincible, the champion, Ziyāuddaulah waddīn Ulugh Khán, may God perpetuate his rule and increase his benefits! On the 1st day of Muharram, of the year 697. [19th October, 1297]\*

\* This inscription contains what Mr. Thomas calls an unusual reiteration of the words *ibnu sultān ibni sultān*, which is perhaps more unusual on coins than on inscriptions. But the spirit of pride that breathes in the words is apparent, when we compare with it the legend of the coins struck in Tirhut by the rebel Bahádúr, given in Badāoní II, p. 298.

In Raziya's Bengal coinage (Thomas, *Chronicles*, p. 107), I read for مهرة, which has no sense, ممددة, *mumiddatu*, 'the helper,' the same as ناصرة. 'Raziya' stands for 'Raziya unnisā,' i. e. one who among women is looked upon with favour.

I also take this opportunity to give my reading of the Náqiruddín Mahmúd Inscription, published by Mr. Thomas in his *Chronicles*, p. 129, an inscription which in style is similar to the above Kai Káu's inscription. General Cunningham has favored the Society with a rubbing of it.

[بني] هذه العمارة في عهد مملكة السلطان الاعظم مالك رقاب الامم ناصر  
الدنيا والدين سلطان السلاطين ذى الامان لاهل الايمان وارث ملك سليمان  
صاحب الخاتم في ملك العالم ابي المظفر محمود بن السلطان خلد الله ملكه و  
سلطانه بامر الملك العالم الكبير اعظم قتلغخان بها الحق والدين ملك ملوك  
الشرق والصين بابن الشمس في ايام ايلته دامت معاليه في العاشر من رجب  
سنة اثني وخمسين وستماية ۥ

'This building was erected during the reign of the great Sultān, the owner of the necks of nations, Náqiruddunyā waddīn, the king of kings, who protects the people of the Faith, the heir of the kingdom of Solomon, the lord of the signet in the kingdom of the world, Abul Muza'ffar Mahmúd Sháh, the son of the king (may God perpetuate his rule and kingdom!), by order of the learned and great Malik, A'zam Qutlugh Khán Baháulhaq waddīn, the Malik of the Maliks of the Eastern Provinces and China, Balban the Shamsí [slave of Shamsuddin Iltitish], during the period of his governorship, may his high qualities endure! On the 10th Rajab, 652.'

From this it will be seen that A'zam Qutlugh Khán (Balban) does not call himself *Malik ul 'Alam* 'the Malik of the world,' but *almalik ul 'álim*, 'the learned Malik.'



The reading of the name 'Aitigín' or 'beautiful moon,' in this inscription was suggested by Mr. Redhouse, and I gladly correct my reading Itgín in the Kai Káús inscription, published by me in the Journal for 1872, p. 103, where the correct name of the builder is Zafar Khán Bahrám Aitigín, the Royal (*sultáni*).\*

The date of this inscription is the latest yet discovered of Kai Káús's reign.

Kai Káús seems to have been succeeded by his brother Shamsuddín Fírúz Sháh (I). Mr. Thomas quotes coins of this king, dated 702, 715, 720, 722, and the cabinet of the Asiatic Society of Bengal has three specimens, struck at Lak'hnaúti, with clear dates 706 and 715, and (slightly doubtful) 710.

Three inscriptions of Fírúz Sháh have hitherto been found, of which one, dated 1st Muharram, 713, or 28th April, 1313, was published by me in this Journal, for 1870, Part I, p. 287.† The other two inscriptions are from Bihár, and are dated 709 and 715. They reveal that Fírúz Sháh had a son Hátim Khán,‡ who in those two years, and probably in the interval, was governor of Bihár.

No. 5. ✓ *The Fírúz Sháh (I) Inscription of Bihár.* [B.C.]

بنى هذه العمارة المزينة ( ؟ ) فى عهد السلطان الاعظم شمس الدنيا  
والدين ابى المظفر فيروز شاه السلطان خلد الله ملكه وسلطانته ونوبة ايلة  
الخان العادل البازل الغازى \* \* الحق حاتم خان ابن السلطان خلد ملكه  
وسلطانه العبد الضعيف محمد حسين كهزوري فى شهر سدة تسع وسبعماية ||

This (additional?) building was erected in the reign of the great Sultán Shamsuddunyáwaddín Abul Muzaffar Fírúz Sháh, the king, (may God perpetuate his kingdom and his rule!) and during the governorship of the just and liberal Khán, the champion of God, \*\* Hátim Khán, the son of the king, may God perpetuate his rule! The weak slave Muhammad Husain Tak'harorí. During the months of the year 709. [A. D., 1309.]

A plate of this inscription was published in this Journal, for 1871, Part I, Pl. viii. The inscription itself is attached to a lofty gateway, which together with an arched hall, fast falling to decay, and a roofless mosque, forms the remains of what tradition calls Hátim Khán's palace. It stands on a gentle eminence, due east of the Bihár mountain.

\* Or, we might at once\* translate, 'the Sultán;' for *sultáni*, as abstract noun, occurs on numerous coins; vide Proceedings A. S. Bengal, for June, 1870, p. 152. The translation of the other portions of the inscription is here confirmed.

† Where in the third line for *الاکرام* read *الاکرم*.

‡ Besides the four\* sons mentioned by Mr. Thomas, Chronicles, p. 148.




بنی هذا المسجد فی نوبة السلطان الاعظم شمس الدنيا و الدين ابوالمظفر  
فیروز شاه السلطان و ایام امارة خاقان الزمان المشاطب بحاتم خان ادام الله  
ظلالهما العبد الواصل بالله و لكرمه الراجی احقر الخلائق بهرام بن حاجی  
تاب الله عليه و غفر لوالديه فی الغرة من رجب سنة خمس عشرة  
و سبعمائة ۱۱

This mosque was built in the reign of the great Sultán Shamsuddunyá waddín Abul Muzaffar Firúz Sháh, the king, and during the governorship of the Kháqán of the age, known as Hátim Khán, may God cause their shadows to last! The slave, who trusts in God and hopes for His mercy, the meanest of mankind, Bahrá, son of Hájí, may God turn to him and may He pardon his parents!

On the first day of the month of Rajab of the year 715. [1st October, 1315.]

This inscription, a fine slab of basalt, leans against the wall of the Chhotá Dargáh in Bihár.

Two other sons of Firúz Sháh, Shihábuddín Bughdah Sháh and the well known Ghiyásuddín Bahádur Sháh, struck coins as 'kings of Bengal' during the lifetime of their father. Of the former, Mr. Thomas says (Chronicles, p. 194)—“Neither history, incidental biography, nor numismatic remains avail to do more than prove the elevation, as they seem to indicate the brief and uneventful rule, of Shihábuddín Bughdah Sháh. No date or place of mintage is preserved.” However, the cabinet of the Asiatic Society possesses two specimens,\* one of the same kind as published by Mr. Thomas (Chronicles, Pl. VI, No. 4), and a new variety, containing the same legend, but with the letters, on the obverse, close together, and with a  instead of the star on the reverse. The former fortunately contains a complete margin, with the clear legend—

ضرب هذه الفضة بلكهنوتي سنة ثمان عشر و سبعمائة

*This silver coin was struck at Lak'hnauti in the year 718.*

Mr. Thomas looks upon the *d* in the name of this king as the Hindí *ḍ*, which is so often interchanged with *ṛ*. This may be the case, inasmuch as Shiháb, according to Muhammadan custom, would assume the name of his grandfather بغرا, *bughrá*;† but in India, people seem early to have substituted a *dál* for the *re*; hence we find in the *Ain* the form بغدي *bughdí*.‡

Ghiyásuddín Bahádur Sháh was the last of the Balbaní kings of Bengal. “In A.H. 733, Muhammad ibn i Tughluq is found issuing his own coin in

\* Evidently Bábu Rájendralála Mitra's selections from the Koch Bihár hoard.

† Which signifies a male 'Bactrian camel' (with two humps). The spellings given in dictionaries are بوغور - بوغر - بوغر - بوغرا - بوغرا.

‡ Vide my *Ain* translation, p. 143.



Bengal, and Bahádur, defeated and put to death, contributed an example to insurgent governors in his own skin, which was stuffed and paraded through the province and the empire."\* And already the year before, we find that a palace had been built, or renovated, in Bihár for the Imperial *Náib*, which tradition still calls the 'sukúnat,' or residency.

No. 7. *The Sukúnat Inscription of Bihár.* [B.C.]

بسم الله الرحمن الرحيم

شد بتجدید عمارت این دروازه عالی عالم آرای و این طاق رفیع فلک سایی در ایام  
خلافت خلیفه جهانپناه آسمان بارگاه خدایگان سلاطین گدیهان فرمان فرمای عالمیان  
ذی الامن و الامان لاهل الایمان وارث ملک سلیمان ابوالمجاهد محمد بن  
تغلقشاه السلطان خلعت خلافت و سلطانه فی الغرة من الشهر المبارک رمضان سنه  
اثني وثلاثین و سبعمائة ۱۱

This high and world-adorning gate, and this lofty, heaven-touching portico, were renewed in the reign of the Khalifah, the asylum of the world, whose court is the heaven, the Lord of the kings of the universe, the ruler of mankind who gives security and safety to the people of the Faith, the heir of the kingdom of Solomon, Abul Mujáhid Muhammad, son of Tughluq Sháh, the Sultán, (may his kingdom and rule be perpetuated!). On the first day of the blessed month of Ramazán, 732, A. H. [27th May, 1332].

From this time till the beginning of the 10th century, Southern Bihár as remarked above, remained detached from Bengal, and followed the fortunes of the empires of Dihlí and of Jaunpúr.

Muhammad Tughluq's governors of Lak'hnautí, Sátgáon, and Sunnár-gáon did not long remain undisturbed, and the death of Bahrám Khán, governor of the last province, was the commencement of new revolutions, which led to the establishment of a line of independent kings.

## II.

### THE SECOND PERIOD, OR THE PERIOD OF THE INDEPENDENT KINGS OF BENGAL (1338 TO 1538, A.D.)

- For this period I shall take the kings singly, and collect for each reign whatever new information I have been able to gather from the rubbings received from General Cunningham, Dr. J. Wise, and Mr. E. V. Westmacott, C. S., and from unpublished Bengal coins in the Society's cabinet.

I have also compared the corresponding chapter of the *Riyázussaláfin* with the statements given in the *Tabaqát i Akbari* and in *Firishtah*.

The line of the independent kings commences with

\* Thomas, *Chronicles*, p. 200.



### I. Fakhruddi'n Abul Muzaffar Mubarak Sha'h.

He had been *Siláhdár*, or armour-bearer, to Bahrák Khán, the Dihlí governor of Sunnárgáon, and on his master's death in 739 A.H., or 1338 A.D., proclaimed there his independence.

According to the *Ṭabaqát i Akbari*, *Firishtah*, and the *Riyáz ussaláṭin*, Mubárák Sháh was killed by 'Alí Mubárák in 741, after a reign of two years and some months.\* But as his coins extend over a period of more than ten years, from 739 to 750, it looks as if the date given in the histories should be corrected to *ده سال و چند ماه*, 'ten years and some months.' Mr. Thomas is willing to antedate Mubárák Sháh's accession to 737; but the coins (*Chronicles*, p. 263, and Plate vi, fig. 7) do not satisfactorily prove this, because the reading *سبع*, in the absence of diacritical marks, is more likely *تسع*, which the histories give, especially because the numerous coins hitherto found do not give the intervening year (738).

The name 'Mubárák Sháh' has been proved by coins, the histories only call him Sultán Fakhruddín or more familiarly still, Fakhrá.† Ibn Baṭúṭah also mentions him under the name of Fakhruddín, and says that he was an eminent man, kind to strangers and Qúfis.‡

Mubárák Sháh's son is mentioned below. His son-in-law Zafar Khán fled from Sunnárgáon over Tattah to Fírúz Sháh in Dihlí, who, at his request, invaded Bengal a second time in the beginning of Sikandar Sháh's reign.§

### II. 'Ala'uddi'n Abul Muzaffar 'Alí' Sha'h.

Regarding this king the *Riyázussaláṭin* has the following :

'It is said that Malik 'Alí Mubárák, who as king is styled Sultán 'Aláuddín, was a trusted servant of Malik Fírúz [subsequently Fírúz Sháh III. of Dihlí], and Malik Fírúz was brother's son to Sultán Ghiyásuddín Tughluq Sháh, and son of the paternal uncle of Muhammad Sháh. Muhammad Sháh, in the first year of his reign, made Malik Fírúz his Náib-Barbak. Now at this time, Háji Ilyás, the foster-brother of 'Alí Mubárák, did something wicked and fled from Dihlí. Malik Fírúz asked 'Alí Mubárák what had become of Háji Ilyás. 'Alí Mubárák went in search of him; and when he found no trace of him, he told Malik Fírúz that Háji Ilyás had run away. Fírúz scolded him and told him to leave his presence. 'Alí

\* The *Riyáz* has five months. Stewart places his death in 743; but all histories have 741.

† Dowson, *Elliot's History*, III, p. 304.

‡ See Ibn Baṭúṭah, p. 195.

§ These facts are only mentioned by *Shams i Siráj*, who moreover places Fakhruddín's defeat and death immediately after Fírúz Sháh's first invasion of Bengal in 754. This is clearly a few years too late.



Mubárák now went to Bengal. On his way, one night, he had a dream and saw the revered saint Jaláluddín Tabrizí, who said to him, "I will give thee the kingdom of Bengal; but thou wilt have to build me a vault." 'Alí Mubárák put the finger of acceptance on his eye, and asked where it was to be built. The saint replied, "In the town of Paṇḍuah at a place where thou wilt see thirty bricks one over another, and below them a fresh rose of a hundred petals."

'When 'Alí Mubárák arrived in Bengal, he entered the service of Qadar Khán, [the Imperial governor of Lak'hnautí] and received from him the command (*bakhshigari*) of the army. But when Fakhruddín revolted against Qadar Khán, 'Alí Mubárák killed his benefactor, and proclaimed himself king under the title of Sultán 'Aláuddín. He then made war upon Fakhruddín, and slew him "as a punishment for having killed his benefactor." Leaving thanahs in (the province of) Lak'hnauti, 'Aláuddín marched to subjugate other parts of Bengal. But from the time he had proclaimed himself king, the whirlpool of pleasure had made him forgetful of his promise to the Saint, when one night Jaláluddín again appeared to him and said, "O Sultán 'Aláuddín, thou art now king of Bengal, but me thou hast forgotten." The king next day at once searched for the bricks, and found them just as the saint had described. There he built the vault, the ruins of which exist to this day.

'Now about this time Háji Ilyás also arrived in Paṇḍuah. Sultán 'Aláuddín put him into prison, but after some time, at the request of his mother who had been Sultán 'Aláuddín's nurse, he set him at liberty, and allowed him to come to court. Háji Ilyás, in a short time, found means to gain over the army, killed 'Aláuddín with the help of the eunuch, and proclaimed himself king under the name of Shamsuddín Bhangrah.

'The reign of Sultán 'Aláuddín lasted one year and five months.'

This extract is so far satisfactory, as it explains the relation between Fírúz Sháh, 'Alí Mubárák, and Háji Ilyás.

The evidence of coins, as in the case of the preceding king, gives 'Aláuddín 'Alí Sháh a longer reign than the histories. Mr. Thomas (Chronicles, p. 265) gives a coin of the year 742, and he adds that he has seen coins of 744, 745, 746. There is nothing strange in the name '*Alí Mubarak*', which he thinks has arisen from "a strange jumble of Muhammadan writers, who endowed 'Alí Sháh with the surname of his adversary Mubárák Sháh;" for 'Alí Mubárák is as common a name as Mubárák 'Alí, and the histories say that this was 'Alí Sháh's name before accession.

From the fact that the coinage of Mubárák Sháh is restricted to the Sunnārgaon mint, and that of 'Alí Sháh to Fírúzábád (*i. e.* Paṇḍuah), we may conclude that the former held Eastern, and the latter Western Bengal.

But 'Alí Sháh was vigorously opposed by Háji Ilyás, who struck coins



in Panduab, 'Alī Shāh's capital, in 740 and 744, and in uninterrupted succession from 746 (probably the correct year when 'Alī Shāh was overcome by him) to 758.

### III. Ikhtiya'ruddī'n Abul Muzaffar Gha'zi' Shā'h.

Fakhruddin Mubārak Shāh was succeeded in Eastern Bengal by Ikhti-yāruddin, who styles himself "son of the Sultān." We may, therefore, accept Mr. Thomas's hypothesis that he was the son of Mubārak Shāh. Coins are the only testimony on which the name of this king of Eastern Bengal has found a place in the list of kings. The figure of one of the coins given by Mr. Thomas, as also the specimen in the cabinet of the Bengal Asiatic Society, shew the year 753.\*

### IV. Shamsuddī'n Abul Muzaffar Ilyā's Shā'h.

The relation of this king to 'Alāuddīn 'Alī Shāh and Firūz Shāh III. of Dihlī has been mentioned above. Having in 746 become master of Western Bengal, he established himself, in 753, in Sunnārgāon (Thomas, p. 269), and thus founded a dynasty, which, with an interruption of about forty years in the beginning of the 9th century of the Hijrah, continued to rule over Bengal till 896 A.H.

Ilyās Shāh's successes in Eastern Bengal were followed by an attempt to extend the western boundaries of the kingdom, and according to the *Riyāz* he pushed as far as the Banāras district. In order to punish him, Firūz Shāh, in 754, after marching through Tirhut and Purniah, invaded Bengal and besieged Ekdālah. The defeat of Ilyās Shāh is almost humorously described by Ziyā i Baranī. But "the invasion only resulted in the confession of weakness, conveniently attributed to the periodical flooding of the country," and Firūz Shāh withdrew,† appointing collectors, apparently

\* Thomas, *Chronicles*, Pl. VI, fig. 9. The margin clearly gives ۷۵۳. A figure with ۷۵۱ would be desirable, so that the reign of this king might be fixed from 751 to 753.

† It is said in the *Tabaqāt i Akbarī*, under Ilyās Shāh, that Firūz Shāh's expedition lasted from the 10th Shawwal, 754, till 11th Rabi' I, 755. As the latter date corresponds to the 5th April 1353, it could only have been prospect of the rains, not the setting in of that season, that drove Firūz Shāh back to Dihlī. The army, according to Baranī, complained of mosquitos in the vicinity of Panduab.

The 'Firūzpūrabād,' mentioned by Stewart and quoted by Mr. Thomas (p. 264, note 2), where Firūz Shāh pitched his camp, should be 'Firūzpūr.' The *Riyāz* says—"At a place where now Firūzpūr lies (*bajāe kih alyaum Firūzpūr ābādast*, not *Firūzpūrabād ast*), Firūz Shāh pitched his camp, and starting from that place on horseback laid siege to the fort of Panduab. In the fort Sultān Shamsuddīn had left his son, whilst he himself had retreated to Fort Ekdālah, which is very strong." The maps shew several Firūzpūrs round about Gaur; thus two are south of the fort of Gaur.



for the first time, in Tirhut, and was glad in subsequent years to exchange presents with Ilyás Sháh.

As Háji Ilyás is the legendary founder of Hájipúr, opposite Patna, we may assume that in northern Bihár the Ghandak formed the frontier; in south Bihár, however, the frontier could not have passed beyond Munger, because the inscriptions preserved in the town of Bihár (*vide* below) shew that in 732, 737, 753, 761, 792, and 799, the town of Bihár was under Dihlí governors.

Just as Mubárák Sháh and 'Alí Sháh are called in the histories by their first name, so is Ilyás Sháh also invariably called Sultán Shamsuddín. The name 'Ilyas Kháje,' which Stewart gives, is not to be found in historical works. Stewart also mentions 760 as the year in which Ilyás died, but the histories only mention that his reign lasted sixteen years and some months. In 758, he had for the third time sent ambassadors with presents to Dihlí, and Firúz returned the compliment by sending him horses; but the Dihlí ambassadors on reaching Bihár heard that Ilyás had in the meantime died. The latest of Mr. Thomas's coins of Ilyás Sháh also bear the year 758.\*

Ilyás Sháh is nicknamed 'Bhangrah,' a corruption, it seems, of the Hindústání *bhangrá*, 'a seller, or eater, of the drug *bháng* (hemp).' Firish-tah says that he does not know the origin of the word; but Ziyá i Baraní evidently knew more about it; for he says, rejoicing in his joke,—“And the well known Bengal Páiks, who for years had borne the name of 'the Bengal Ancients' or 'the Dead,' had taken a quid from Ilyás the Bháng-eater, in order to shew that they were ready to sacrifice their lives for him; and standing in front of the train of that wild maniac, together with the mouldy-looking Bangálí Rájahs, they bravely threw about their arms and legs; but as soon as the battle commenced, they put from fear their fingers into their mouths, gave up standing to attention, threw away swords and arrows, rubbed their foreheads on the ground, and were consumed by the swords of the enemies.” A graphic description, by the way, of the Bengal Military Police in 1353, A. D.

No inscriptions have hitherto turned up that mention Ilyás Sháh; nor does the author of the Riyáz, who had a good personal knowledge of the ruins of Gaur and Panduah, speak of any buildings erected by him. He only says—‘It is said that Sultán Shamsuddín made in Bengal a reservoir in imitation of Hauz i Shamsi at Dihlí.’

\* Reinaud, however, quoted by Marsden (p. 566, note) mentions two Sunnárghat coins of 754 and 760. The MS. of the Riyáz belonging to the Asiatic Society of Bengal mentions 758 as the year in which the last ambassadors left for Dihlí; Stewart has 759; and the Tabaqát and Firishtah, who copies from it, have ‘in the end of 759.’ The earliest coin of Sikandar figured by Mr. Thomas (Journal, As. Soc. of Bengal, 1867, Part I, p. 63, and Pl. II, No. 12) belongs to 761.



Regarding the coinage of Ilyás Sháh, *vide* Thomas, Initial Coinage of Bengal, Journal, As. Soc. Bengal, 1867, pp. 57, 58.

### V. Abul Muja'hid Sikandar Sha'h.

Ilyás Sháh was succeeded by his eldest son Sikandar Sháh. The beginning of his reign was marked by a second attempt\* made by Firúz Sháh to annex Bengal; but as in the first, Ekdálah held out, and Firúz returned to Dihli, and never again interfered in Bengal matters.

'In 766,' says the Riyáz,† 'Sikandar commenced to build the Ádínah [*i. e.* Friday] Mosque; but he had not finished it when he died, and the building remained half completed, and now-a-days parts of the edifice may be seen in the jungle near Panduah, about a *kos* from it. I have seen it myself: it is, indeed, a fine mosque a *kos* must have cost a great deal of money. May Sikandar's efforts be thankfully remembered!'

According to the same author, Sikandar Sháh died after a reign of nine years and some months—a statement also given in the *Tabaqát*—of wounds which he had received 'on the field of Goálpárah,' fighting with his favourite son Ghiyás, whom the machinations of a jealous step-mother had driven into rebellion.‡

'Sikandar was the contemporary of the revered saint 'Alául Haq.'

Several inscriptions belonging to Sikandar's reign have been found. One of the year 765, from Dínájpúr, was published by me in the Journal for 1872, p. 105. I remarked there on the beauty of its characters;§ but the inscriptions inside and outside the Ádínah Mosque, rubbings of which the Society owes to General Cunningham and Mr. W. L. Heeley, are the finest that I have seen. The characters are beautiful, and the rubbings have created sensation wherever I have shewn them. The inscription inside is 13½ ft. long and 1¼ ft. broad, but contains only verses from the Qorán [Sur. IX, 18, 19], on the top in Kufic and below in (what people call now-a-days in India)

\* In 760, according to the *Tabaqát* and the *Riyáz*; Stewart has 761. Regarding Firúz Sháh's desire to reinstate Zafar Khán, Mubarak Sháh's son-in-law, in the government of Sunnárgaon, the cause that led to the expedition, *vide* Dowson, *Elliot's History of India*, III, 304, ff.

† Stewart has 763.

‡ Ghiyáz marched with a large army from Sunnárgaon, and pitched his camp at Sunnárgarhí. Stewart has *Sunnárkoí*. From the other side, his father issued forth with a terror-inspiring army, and the next day, on the field of Goálpárah, both parties engaged in deadly strife. The whole story is only to be found in the *Riyáz*.

The Goálpárah meant here is, no doubt, the village quite close to Panduah, S. W. of it. I have not identified Sunnárgarhí.

§ It was written by one Ghiyás. General Cunningham is inclined to think that the Ghiyás is Sikandar's son.



Tughrá characters. The stone outside measures 4 ft. 9 in. by 10 in., and its letters are just as beautiful.

No. 8. *The Sikandar Sháh Inscription, Adínah Mosque, Hazrat Panduah, A. H. 770, (vide Pl. V, No. 3).\**

أمر ببذاء العمارة هذا المسجد الجا ابا ( ؟ ) فى الدولة السلطان الاعظم  
اعلم اعدل اكرم اكمل السلاطين العرب والعجم الواثق بتأييد الرحمن ابو المجاهد  
سكندر شاه سلطان بن الياس شاه السلطان خلد خلافته الى يوم الموعود  
كتبه فى التاريخ ست رجب سنة سبعين و سبعمائة ١١

This.....mosque was ordered to be built in the reign of the great king, the wisest, the justest, the most liberal of the kings of Arabia and Persia, who trusts in the assistance of the Merciful, Abul Mujáhid Sikandar Sháh, the king, son of Ilyás Sháh, the king,—may his reign be perpetuated till the day of promise!

He wrote it on the 6th Rajab of the year 770. [14th February, 1369.]

Neither inscriptions nor coins give Sikandar Sháh a full *julús* name; he only has a *kunya*, Abul Mujáhid. Perhaps it would be going too far in speculations, if I were to say that Ilyás *naturally* called his son Sikandar; but a Muhammadan, on hearing the name of Ilyás, will immediately think of the *áb i hayát*, 'the water of life'; and as Sikandar is the legendary successor of Ilyás (the Prophet Elias) in search of the precious commodity, the name of the father may have suggested that of the son.

As stated above, the histories assign Sikandar Sháh a reign of nine years and some months. Stewart says that he died in 769, a year obtained by adding nine years and a fraction to 760, which he assumes to have been the year in which Ilyás Sháh died. The above Panduah inscription extends Sikandar's reign to the latter half of 770, and the coins figured by Mr. Thomas in his 'Initial Coinage' (J. A. S. B., 1867, Pl. II, Nos. 12, 14, and 13) give the dates 761, 782, and 783. But Mr. Thomas also states that among the large number of Sikandarsháhís that passed through his hands, he found coins of almost every year between 750 and 792, with the exception of the years 755, 762, 767, 768, 769, 774, 775, 777, and 778. It thus becomes clear that Sikandar Sháh struck coins as prince. Mr. Thomas also quotes A'zam Sháhí coins of 772, 775, 776, the years when Sikandar's coinage is most interrupted, and again from 790 to 799. Further, we have to remember that the poet Háfiz sent the well known ghazal

\* I have elsewhere remarked on the numerous grammatical mistakes in Bengal Arabic Inscriptions. They consist chiefly in wrong articles, mistakes in gender, in oblique cases, and in wrong constructions of the Arabic numerals. In order not to disfigure the text, I shall no more indicate such errors by a (sic).





to Ghiyásuddín A'zam Sháh, 'king' of Bengal; and as Háfiz died in 791 (خاك مصلي being the date of his death), the ghazal must have been sent to Bengal during Sikandar Sháh's lifetime. The fact that A'zam Sháh's early coins (of A. H. 772) were struck in Mu'azzamábád (*vide* above), agrees with the statement of the Riyáz that he rebelled in Eastern Bengal, where he remained "nominally subordinate or covertly resistant to paternal authority."\*

## VI. Ghiya'suddi'n Abul Muzaffar A'zam Sha'h.

The only fact given in the *Riyáz* and omitted by Stewart is that "A'zam Sháh was treacherously murdered (*ba-daghá kushtah*) by Rájah Káns "after a reign of seven years and some months,† or, as I have seen in a "little book, after a reign of sixteen years, five months, and three days."

The coins of this king, as mentioned before, go to 799; the latest figured by Mr. Thomas (*Initial Coinage of Bengal*, Pl. II, No. 15) is of 795.‡ No inscription of this and the following two kings have been found.

\* It is also curious that in the inscription of 777, published by me in this *Journal* for 1870, p. 292, no king is mentioned, as if it had been doubtful who the real king was.

In order to remove all doubts regarding a confusion of سبعين and تسعين in the reading of Sikandar's and A'zam Sháh's coins, a few clear drawings of Sikandar Sháh's struck between 783 and 792, and of A'zam Sháh's, struck in 772, 775, 776, would be required. A'zam Sháh's reign, according to the common statement, lasted 7 years, which we certainly get when we subtract 792 (the latest year cited by Mr. Thomas for Sikandar Sháh) from 799 (the latest year cited for A'zam Sháh); but if we take the second statement, given in the *Riyáz*, regarding the length of A'zam Sháh's reign, viz. 16 years, 5 months, and 3 days, and subtract it from 799, we get 783, the year of Mr. Thomas's latest figured coin.

† I. e., according to the wrong chronology of the *Tabaqát* and the *Riyáz*, in 775.

‡ I may here suggest a few unimportant alterations in Mr. Thomas's readings of A'zam Sháh's coins ('*Initial Coinage*,' J. A. S. B., 1867, pp. 68 to 70). First, *عون الاسلام* is to be corrected to *غوث الاسلام*. Again, the mysterious كين (*loc. cit.*, p. 68) is nothing but *يمين*, *yamín*. Lastly the reverse of coin No. 38 (*loc. cit.*, p. 70), as I see from a specimen in the Society's Coin Cabinet, is

ابد الله دولته و خلد الله ملكه

May God render his power everlasting, and may God perpetuate his reign,—*abbada alláhu*, not the name 'Abdullah,—which removes from the mint officials the charge of ignorance. It was only Akbar who, in his hatred of everything that was Arabic, recommended the substitution of *Alif* for 'Ain, and *g* for ح, &c.

In the reverse of the Sikandar Sháhí (*loc. cit.*, p. 64, No. 23), as I also see from a coin in the possession of the Society, there is a wrong *Alif* before *لدين* and a و (*waw*) is omitted before *Alqáhiru*,—"Who renders assistance to the religion of God, and who is victorious over the enemies of God." This cancels the footnote.



**VII. Saifuddi'n Abul Muja'hid Hamzah Sha'h, son of A'zam Sha'h.**

The histories give him the epithet of Sultán ussaláṭin, and praise him for his virtues.\* Firishtah says:—"And the Rájahs of the country did not draw their heads out of the yoke of obedience and practised no neglect and delay in paying taxes."

According to the Ṭabaqát, he reigned ten years. But the author of the Riyáz saw "in the little book," that the reign of this king was 3 years, 7 months, and 5 days, which would bring his reign to 802, or 803, A. H.

Marsden has published a coin of this king, without, however, giving the Royal name (Numism., Pl. XXXVII, No. DCCLIV). It follows in appearance the coins of Sikandar Sháh and A'zam Sháh; the margin contains 'Firúzábád,' but no year. The specimen in the cabinet of the Asiatic Society is of very rude manufacture, and has most clumsy letters, especially on the reverse.

*Vide* Pl. VII, No. 1. Silver. Weight, 162.505 grains. A. H. (80)4. (Asiatic Society of Bengal, one specimen.) Rare. Circular areas.

OBVERSE—*المؤيد بتأييد الرحمن سيف الدنيا والدين ابوالمجاهد حمزة شاه*  
*بن اعظم شاه السلطان*

REVERSE—*ناصر الاسلام و المسلمين*

MARGIN—*سنة اربع*

Assisted by the assistance of the Merciful, Saifuddunyá waddín Abul Mújáhid Hamzah Sháh, son of A'zam Sháh, the king. The helper of Islám and the Muslims \* \* year \* \* 4.

**VIII. Shamsuddi'n ? ?, son of Saifuddi'n Hamzah Sha'h.**

The Ṭabaqát says that this king followed the path of his father, and died after a quiet reign of three years and a few months. Firishtah states that as the king was young and deficient in intellect, an infidel of the name of Káns, who was an Amír of the court, obtained great power and influence, and usurped the executive and the collection of taxes. The Riyáz has the following: "After enjoying himself for some time, he died, in 788, from an illness, or through the foul play of Rájah Káns, who at that time was very powerful. *And some writers have asserted that this Shamsuddin was no son of the Sultán ussaláṭin, but an adopted son (mutabanní), and that his name was Shihábuddín. Anyhow, he reigned 3 years, 4 months, and 6 days.* It is clear that Rájah Káns, who was zamíndár of Bhatúriah, rebelled against him, killed him, and usurped the throne."

**THE SAINTS OF GAUR AND HAZRAT PANDUAH.**

Before proceeding in my account of the kings of Bengal, it may be convenient here to collect the information which we possess regarding the

\* I. e., according to the erroneous chronology, he would have died in 785.



Muhammadan saints of Gaur and Panduah. Their names often occur in Bengal History, while their dargáhs, as elsewhere, are the natural depositories of inscriptions.

The principal personages of saintly renown are Shaikh Jaláluddín Tabrízī, Shaikh Akhī Sirájuddín 'Usmán, Shaikh 'Aláulhaq, and Núr Qutb 'Álam.\* All larger works on Muhammadan Saints contain biographical notices of them.

### 1. *Shaikh Jaláluddín Tabrízī.*

He was a pupil of Abú Sa'id Tabrízī and of the renowned Shaikh Shiháb-uddín Suhrawardí. He accompanied the latter on his pilgrimages to Makkah, and used to carry on his head a small oven with the hot pots in which his master kept his food. Numerous miracles are ascribed to him. Among others, he converted, with one look, at Badáon a Hindú milkman to Islám. Though several times charged with immoral practices, he defeated his accusers. When he went to Bengal, he commenced to destroy idols; in fact, his vault occupies the site of an idol temple. He kept a *langarkhánah*, where he housed and fed beggars and travellers. He died in 642 A. H., or A. D. 1244. The place where he died does not seem to be accurately known. The Mutawallis of the tomb near Gaur say that he died in Aurangábád (the old K'harkí), and that his shrine in Bengal† is a mere *jawáb*, or imitation-vault; but the *Aín i Akbarí* (IVth book) says that he was buried at Bandar Díú Mahall.‡ *Vide* below under Yúsuf Sháh.

### 2. *Shaikh Akhī Sirájuddín 'Usmán.*

Siráj came as a boy to Nizámuddín Auliá of Dihlí, who handed him over to Fakhruddín Zarrádí to teach. In course of time, he became very learned, and was told to go to Bengal, where he died in 758, A. H., or 1357, A. D. The *Haft Iqlím* says that Nizám called him 'the mirror of Hindústán,' and that he only received, when advanced in age, proper instruction from Fakhruddín. After Nizám's death, he went to Lak'hnaúti, and all the king became his pupils.

For the inscriptions at his tomb, *vide* below under Husain Sháh.

\* Besides these, the *Riyáz* mentions a Shaikh Rájá Bayábání (died in 754, when Firúz besieged Ilyás Sháh). Shaikh Hamíd of Nágor, one of Núr Qutb 'Álam's teachers, belongs to Nágor in Jodhpúr, not to Nágor in Bírghám, as Stewart says.

† As most Dargáhs in Bengal, Sháh Jalál's tomb is rich. Its lands lie chiefly in Bardwán District, at Bohát, near Maimári, a station on the E. I. Railway. There is a Madrasah and a Sarái in Bohát.

The oven is still shewn at the Gaur shrine, and "till three generations back, it cooked rice without fuel."

‡ I. e., either the Maldives, or Díú in Gujarát. *Vide* Dowson, IV, 96, note.



3. *Shaikh 'Aláuddín 'Alá-ulhaq.*

'Alá-ulhaq was the son of Shaikh As'ad of Láhor, and one of the spiritual successors of Shaikh Akhí Sirájuddín 'Usmán. According to the *Ma'árij-ulwiláyat*, he was a true Quraishí Háshimí, and traced his descent from Khálid bin Walíd. He was at first exceedingly proud of his origin, wealth, and knowledge, so much so, that Shaikh Akhí complainingly told Nizámuddín Auliá that he was no match for 'Alá-ulhaq. But Nizám told him not to mind it, as 'Alá would in time become his (Akhí's) pupil. It seems that 'Alá in his pride called himself *Ganj i Nabát*,\* and when Nizám heard this, he cursed him, and said, "May God strike him dumb!" The curse instantly took effect; nor was 'Alá-ulhaq's tongue loosed till he became the humble pupil of Shaikh Akhí. As Shaikh Akhí travelled a great deal on horseback, 'Alá-ulhaq accompanied him walking barefoot and carrying his master's pots filled with hot food on his head, till he became quite bald. Nor did he feel concerned when Shaikh Akhí, with a view of humbling him, passed on his journey the houses of his brothers, who were all Amírs and rich men.

Once some travelling faqírs came to 'Alá-ulhaq's cell. One of them had a cat with him;† but whilst in 'Alá's house, the cat was lost. The owner asked the saint to 'make' him a new cat; but when 'Alá said that he did not know from what to make one, he replied, "What do I care from what you make it, make it out of the horn of a stag, if you like." 'Alá was annoyed and said, "You shall feel the horns." Thereupon another of the faqírs, in order to vex the saint, said, "Well, can I make a cat from my testicles?" and 'Alá replied, "There you shall feel it." When the faqírs had left the house, the former was killed by an ox, and the second got an attack of orchitis, of which he died.

'Alá-ulhaq spent large sums in feeding pupils, beggars, and wanderers. But the king of the land got envious, because the public treasury even could not have borne such a heavy expenditure, and he drove the saint to Sunnárgáon. He stayed there for two years, and gave his servants orders to spend twice as much as before. And yet, he only possessed two gardens, the income from which was eight thousand silver tankahs *per annum*; but as he gave a beggar the land as a present, all money must have been supplied him from the unseen world.

\* Faríduddín 'Attár, the great saint of Pák Paṭan (Ajodhan) in the Panjáb has the title of *Ganj i Shakar*, 'store of sugar.' But *shakar* may be unrefined, whilst *nabát* is applied to the best refined sugar. 'Alá-ulhaq, therefore, placed himself above Faríd.

† What the dog is to Europeans, is the cat to Indians. To kill or lose a cat is most unlucky.



'Alá-ulhaq died on the 1st Rajab, 800, or 20th March, 1398, and his tomb is at Hazrat Panđuah.

#### 4. *Shaikh Nūruddīn Nūr Quṭb 'Ālam.*

He is the son and spiritual successor of 'Alá-ulhaq. In order early to practise the virtue of humility, he washed the clothes of beggars and wanderers, and kept the water constantly hot for ceremonial ablutions; nay, he even swept the cell of his father and cleaned the privies attached to the house. One day, whilst thus engaged, his pure body was polluted, and his father allowed him to proceed to other work, as woodcutting. He refused the invitation of his worldly brother A'zam Khān, who was the Vazir at the court of Muhammad Tughluq.\*

Quṭb 'Ālam died in 851, or A. D. 1447, and lies buried at Panđuah. The words *shams ul hidāyat*, 'lamp of guidance,' are the *tárikh* of his death. He was succeeded by his sons Rūf'atuddīn and Shaikh Anwar.

### IX. Rājah Káns.

We saw above that Shamsuddīn (II.)—a king whose existence and royal titles have not yet been verified by medallie or mural evidence—was dethroned by Rājah Káns. This Rājah, at the present stage of research, belongs to legends and traditions rather than to authenticated history, there being little else known of him besides the fact that through him the succession of kings of the house of Ilyás Sháh, which had successfully ruled over Bengal for more than fifty years, was broken, and that his son became a Muhammadan.

The remark of the Riyáz regarding Shamsuddīn and the probability that he did not belong to the old dynasty, but was an adopted son and was called *Shihábuddīn*, receives a particular importance from the following coins of a new king, whom I shall now assign, for the first time, I believe, a place in the list of the kings of Bengal. Their manner of execution, which follows closely on that of the coins of preceding kings, and the mint towns mentioned proclaim them to be Bengal coins. The name of the new king is—

#### **Shihábuddīn Abul Muzaffar Ba'yazid Sháh.**

His coins do not mention the name of his father, and the absence of the usual phrase *ibn ussulṭán*, 'son of the king,' indicates that he was either a usurper, in which case 'Báyazid' might represent the Muhammadan name of Rājah Káns after conversion, or a puppet king, in whose name Rājah Káns reigned and coined in the 'Dáru'l Islám' of Bengal.

If we take the first alternative, we have against it the clear statement of the historians that Káns remained a Hindú, and also the circumstance

\* This is rather early, considering that 752 is Tughluq's last year.



that his son does not mention the name of his father on his coins, which he would scarcely have omitted, if Káns had turned Muhammadan. And if we look upon this Báyzíd Sháh as a successful rival of Rájah Káns, we have history and legends against us. Hence the theory of a puppet king—a *benámi* transaction—is perhaps the least objectionable.

1. *Vide* Pl. VIII, No. 2. Silver. Weight, 163·94 grains. A.H. 812. Circular areas. (Asiatic Society of Bengal, one specimen.)

OBVERSE.—المؤيد بنأيد الرحمن شهاب الدنيا والدين ابو المظفر بايزيد شاه  
السلطان

*Margin.*—Cut away.

REVERSE.—ناصر امير المؤمنين غوث الاسلام والمسلمين خلد ملكه

*Margin.*—ضرب هذه السكة . . . سنة ٨١٢

Assisted by the assistance of the Merciful, Shihábuddunyá waddín Abul Muzaḥḥar Báyzíd Sháh, the king.

The helper of the Commander of the Faithful, the aid of Islám and the Muslims, may God perpetuate his reign! This coin was struck \* \* \* \* \* year 812.

2 *Vide* Pl. VIII, No. 3.\* New variety. Silver. Weight, 165·76 grains. Firúzábád, A. H. 816. (Asiatic Society of Bengal, two specimens.) Rare. The obverse has sixteen convex scollops, and the reverse eight concave ones.

OBVERSE.—As in No. 1.

*Margin.*—Cut away.

REVERSE.—ناصر امير المؤمنين غوث الاسلام والمسلمين

\* *Margin.*—(ابوبكر) ضرب (عمر) فيروز عثمان آباد سنة (علي) ٨١٦

*In the Margin.*—(Abú Bakr) struck at ('Umar) Firúz-(Usmán) ábád in the year ('Alí) 816.

Rájah Káns has been identified by Mr. E. V. Westmacott† with Gaṇesh, Rájah of 'Dyṇwaj,' or Dínájpúr. The Riyáz, who appears to have compiled his chapter on this usurper from local traditions, calls him 'Rájah of Bhatúriah.' Whether this name is an ancient one, I cannot say; it does not occur in the *Ain*, nor have I seen it before the time of Rennell's *Atlas* (1778), in which the name of Bhatúriah is given to a large District east of Máldah, bounded in the west by the Mahánandá River and the Purna-

\* In the figure of this coin, there is a wrong stroke between the  $\Lambda$  and  $\mid$  in the year.

† *Vide* Calcutta Review, No. CX, October, 1872. Col. Dalton suggests a comparison of the name 'Káns' with 'Kons,' or 'Konch,' the same as Koch (Koch Bihár). Koch is often pronounced with a nasal twang, as if it were spelt Koñs.

It is also curious that a Parganah near Dínájpúr (south-west of it) has the name of 'Bajit púr,' a well known Bangálí corruption of Báyzíd púr, which at once reminds us of Báyzíd Sháh. We may attach some significance to this, as the name is evidently old; for the name of this very parganah occurs in the *Ain i Akbari* (my text edition, p. 403, in *Sirkár Panjrah*).



bhaba its tributary, in the south by the left bank of the Ganges, in the east by the Karataya, and in the north by Dínájpúr and G'horág'hát. Bhatú-riah, therefore, is the district to both sides of the Atrai River.

The Ṭabaqát i. Akbari merely states the fact of Káns's usurpation, and assigns him a reign of seven years. Firishtah, who has been followed by Stewart, says that, "though no Muhammadan, he mixed with them and loved them, so much so that some Muhammadans testified to his conversion, and claimed for him a Muhammadan burial. After a vigorous reign of seven years, he went to the world of annihilation, and was succeeded by his son, who had the honor of being converted to Islám."

The Riyáz represents the views of the opponents of the Rájah, and gives the following:—

'When Sultán Shamsuddín died, Rájah Káns, a Hindú zamindár, seized the whole kingdom of Bengal, and sat proudly on the throne. Oppression and bloodshed followed; he tried to kill all Muhammadans, and had many learned men murdered. In fact, his object was to drive Islám from his kingdom. One day, people say, Shaikh Badr ul Islám, son of Shaikh Mu'inuddín 'Abbás, went to the wicked tyrant, but did not greet him. When the Rájah asked him why he had not saluted him, he replied, "Learned men are not supposed to greet infidels, especially an infidel tyrant, who like thee sheds the blood of Muhammadans." The unclean heretic was silenced, he winced under the reply, and thought of nothing else but to kill the Shaikh. He, therefore, called him one day to a room, the door of which was very low and narrow. But the Shaikh saw through the plan,\* and put his foot first over the threshold, and then entered without bending his head. This annoyed the Rájah so much, that he gave orders to take him to the path of his brethren. The Shaikh was at once executed. All the remaining learned men, on the same day, were put on board a ship and were drowned in the middle of the river.

'The usurpation of this infidel and the slaughter of Muhammadans drove at last the Saint Núr Quṭb ul 'Álam to despair, and he wrote a letter to Sultán Ibráhím i Sharqí (of Jaunpúr), *who at that time had extended his kingdom to the [Eastern] frontier of Bihár*,† complaining of the injustice done to Islám and the Muslims, and asking the king to march against the infidel. Ibráhím received the letter with due humility, and consulted with Qází

\* The Rájah evidently wished the Shaikh to come to him in a stooping position, which might be looked upon as a 'salám'.

† The Jaunpúr kingdom was founded in 796, and Ibráhím Sharqí, the first titular Sultán, reigned from 804 to 844. The faulty chronology of the Ṭabaqát, Firishtah, and Stewart, makes Rájah Káns die in 794. The story of the Riyáz, therefore, agrees very well with the testimony of coins; but it is strange that the author of the Riyáz did not see the anachronism.



Shihábuddín Jaunpúrí, the chief of the learned of the age, who was allowed at court to sit on a silver chair. The Qází represented the worldly and religious advantages that would flow from a war with the infidel on the one hand, and from a visit to the great saint, on the other. The king, therefore, collected a large army, invaded Bengal, and pitched his camp at Sarái Firúzpúr. Rájah Káns now applied to Quṭb ul 'Álam, begged to be forgiven, and asked him to intercede on his behalf with the king of Jaunpúr. The saint replied that at the request of an infidel he could not bid a Muhammadan king stop; in fact, he had himself invited the enemy to come. The Rájah placed his head on the feet of the saint, and said, he was willing to perform anything he ordered him to do, whereupon Quṭb ul 'Álam told him that he would not interfere until he was converted to Islím. The Rájah placed the finger of acceptance upon his eye; but the wife of the infidel led him back to perdition, and he evaded conversion. But he took his boy, who was twelve years old and had the name of Jadú, to the saint and said, "I have got old and wish to renounce the world; make this boy a Muhammadan and give him the kingdom of Bengal." Quṭb ul 'Álam, thereupon, put some *pán* which he was chewing, into Jadú's\* mouth, taught him the creed, and thus made him a Muhammadan, giving him the name of Jaláluddín. According to the Rájah's wish, he also sent a proclamation through the town, ordering the people to read the Friday prayer in the name of the new king. The blessed law of the prophet was thus carried out with new vigour. Quṭb ul 'Álam now went to king Ibráhím, and asked him to return. The king looked angrily at Qází Shihábuddín, who said to Quṭb ul 'Álam, "At your request the king has come here, and now you come to him as ambassador to implore his mercy. What shall men think of this?" The saint replied, "When I called you, a tyrant oppressed the faithful; but now, in consequence of your approach, the new ruler has become a Muhammadan; fight with infidels, not with a king that belongs to the Faith." This silenced the Qází; but as the king still looked angry, the Qází had the boldness to enter into a scientific discussion with the saint. After many questions and answers, Quṭb said, "To look on the poor with contempt or entangle them in examinations, brings no man prosperity. Your miserable end is at hand." He then looked even at the Sultán with expressions of anger. Ibráhím now got vexed, and returned with a sorry heart to Jaunpúr. It is said that not long after, Sultán Ibráhím and Qází Shihábuddín died.

'When Rájah Káns heard that Sultán Ibráhím was dead, he deposed Jaláluddín, took again the reins of the government into his own hands, and ruled according to his false tenets. He made several hollow cows of gold, threw Jalál into the mouth of one, and pulled him out behind; the gold

\* As saints do with their pupils, or in order to break the boy's caste.



was then distributed among the Brahmans. He hoped that the boy would thus return to his old faith. But as Jalál had been converted to Islám by a saint like Quṭb ul 'Álam, he remained faithful to his new belief, and the talk of the infidels made no impression upon him.

'Rájah Káns now again commenced to persecute the Muhammandans. When the measure of his cruelties was full, Shaikh Anwar, son of Quṭb ul 'Álam, said one day to his father, "It is a matter of regret that, with you as guardian saint, the Muhammadans have so much to suffer at the hand of this infidel." The saint was just at his devotions, and angry at the interruption, he exclaimed, "The misery will not cease till thy blood is shed." Anwar knew that whatever his father said, was sure to come true; he, therefore, replied that he was a willing martyr \* \* \*. The oppression of Rájah Káns reached the climax, when he imprisoned Shaikh Anwar and his brother's son Shaikh Záhíd. But as he dared not kill them, he banished them to Sunnárgaon, in the hope that they would confess where Quṭb ul 'Álam had buried his money and that of his father. But even though they were sent to Sunnárgaon, and were much threatened, no money was found, because none had ever been buried, and Shaikh Anwar was ordered to be killed. Before his execution, he said that at such and such a place they would find a large pot. People dug and found a large vessel with only one gold coin in it. On being asked what had become of the other money, Anwar replied, "It seems to have been stolen." Anwar, no doubt, said so by inspiration from the unseen world.

'It is said that on the very day on which Shaikh Anwar died, Rájah Káns went from his palace to the infernal regions. But according to the statement of some, he was killed by his son Jaláluddín, who, though in prison, had won over the officers. The oppressive rule of this monster had lasted seven years.'

### X. Jaláluddín Abul Muzaffar Muhammad Sha'h.

According to the histories, he is the son\* of Rájah Káns. His real name is given in the Riyáz as 'Jadú,' and by Firishtah as 'Jatmall' or 'Jaimall'—the MSS. differ. There is a place Jatmallpúr, a little east of Dínájpúr, and we may assume the first name to be correct. As the coins of Báyzíd Sháh go up to 816, and the coins of Muhammad Sháh commence with 818, the latter year, or 817, must be the beginning of his reign; and if he reigned for seventeen years, as stated in the histories, his reign may have lasted from 818 to 835, which agrees with the year on Marsden's coin

\* Stewart supposes that he was the eldest son of the Rájah by a Muhammadan concubine. According to the Tabaqát and Firishtah, he reigned seventeen years, and died in 812 A.H. Stewart says, eighteen years.



of his successor Ahmad Sháh (836). General Cunningham tells me that the Bodleian Library at Oxford has a specimen of 831.

1. *Vide* Pl. VIII, No. 4, and Marsden, Numism., Pl. XXXVII, No. DCCLXV. Silver. Weight, 166·89 grains. Mint town? A.H. 818. (As. Soc. Bengal, one specimen.)

Obverse area, bounded by sixteen convex scollops; reverse area, a four-leaved shamrock.

OBVERSE.—جلال الدنيا و الدين ابو المظفر محمد شاه السلطان

*Margin*, none.

REVERSE.—ناصر الاسلام و المسلمين خلد ملكه

*Margin*.—ضرب هذه السكة في سنة ٨١٨

Jaláluddunyá waddín Abul Muzaffar Muhammad Sháh, the king. The helper of Islám and of the Muslims,—may his reign be perpetuated! This coin was struck in.....in the year 818.

Marsden gives this coin as dated 823, but his figure does not shew that year.

2. *Vide* Pl. VIII, No. 5. New variety. Silver. Weight, 165·695 grains. A. H. 818. (As. Soc. Bengal, one specimen). Obverse area as in No. 1; reverse, eight concave scollops.

OBVERSE.—السلطان العادل جلال الدنيا و الدين ابو المظفر محمد شاه السلطان

*Margin*, none.

REVERSE.—ناصر امير المؤمنين غوث الاسلام و المسلمين

*Margin*, ضرب (عمر) سنة ثمان (عثمان) عشر (على) ثمانماية

The just king Jaláluddunyá waddín Abul Muzaffar Muhammad Sháh, the helper of the Commander of the Faithful, the aid of Islám and the Muslims. (Abú Bakr) struck ('Umar) in the year ('Usmán) eighteen ('Alí) eight hundred [818, A. H.].

3. *Vide* Pl. VIII, No. 6. Silver. Weight, 155·725 grains. Sunnár-gáon (?), A. H. 821. (As. Soc. Bengal, one specimen.) Obverse area, as in No. 1; reverse area, a square inscribed in a circle.

OBVERSE and REVERSE, as in No. 1.

*Margin*, ضرب \* \* \* \* (سفاركانو?) ٨٢١

During the time of Muhammad Sháh, says the Riyáz, the town of Panquah became so flourishing, that it cannot be sufficiently described. The king also built a mosque, a reservoir, the Jaláli Tank, and a Sarái in Gaur; in fact, Gaur also was again during his reign occupied. He reigned for seventeen years. In the year 812 [822], he made the Palace of Gaur his residence. A large dome with his tomb still exists in Panquah, and the tombs of his wife and his son are at the side of his in the same vault.



# XI. Shamsuddi'n Abul Muja'hid Ahmad Sha'h.

Marsden (*Numismata*, Pl. XXXVII, No. DCCLXXIV) has published a silver coin of this king, whom the histories call the son of Muhammad Sháh. The coin bears the clear date 836 A.H. (1432-33, A.D.), and differs from the preceeding Bengal coins by having the Kalimah on one side.\* The *Tabaqat* merely states that he reigned for sixteen† years, and died in 830 A. H., whilst *Firishtah* adds that he was a good and liberal king. The *Riyáz* gives him a different character. 'As Ahmad Sháh was of rough disposition, tyrannical, and blood thirsty, he shed the blood of innocent people, and tore open the bodies of pregnant women. When his cruelty had risen high, and great and small were in despair, Shádi Khán and Náçir Khán, two of his slaves, whom he had raised to the rank of Amírs, made a conspiracy and killed him. This took place in 830, after Ahmad Sháh had reigned sixteen, or, as some say, eighteen, years.'

'Shádi Khán now desired to get rid of Náçir Khán; but Náçir Khán outwitted him, killed him, and issued orders as king. The Amírs and Maliks, however, refused to obey him, and murdered him, after seven days, or, as some say, after twelve hours.'

With Ahmad Sháh ends the dynasty of Rájah Káns. Taking the year 817, the beginning of Muhammad Sháh's reign, as a well attested starting point, and assuming the duration of each reign as given in the histories to be correct, we would get—

	<i>Duration of reign.</i>	<i>Ascertained dates.</i>
Rájah Káns (Báyazid Sháh)	} 817 — 7, or 810 to 817.	Coins of 812 and 816.
Muhammad Sháh,		
Ahmad Sháh,		
	817 + 17, or 817 to 834.	Coins of 818, 821, 823, 831.
	834 + 16, or 834 to 850.	Coin of 836.

Now above we saw that the last ascertained year for Hamzah Sháh's reign is 804. If we then allow, on the testimony of all histories, above three years to Shamsuddín, son of Saifuddín, we would be brought to the year 808, the commencement of the usurpation of Rájah Káns, and the reckoning, according to the data which we at present possess, is on the whole satisfactory.

The length of Ahmad Sháh's reign only is open to doubt; for if his reign be extended to 850, we are forced to assume that for the greater part of his rule he was vigorously and successfully opposed by Náçiruddín Mahmúd, whose coinage, as will be seen from the following, goes back at least to 846 A. H.

\* The reading of the obverse is—

السلطان الاعظم شمس الدنيا و الدين ابو المجاهد احمد شاه بن محمد شاه السلطان

† Stewart has eighteen.



## RESTORATION OF THE ILYA'S SHA'H DYNASTY.

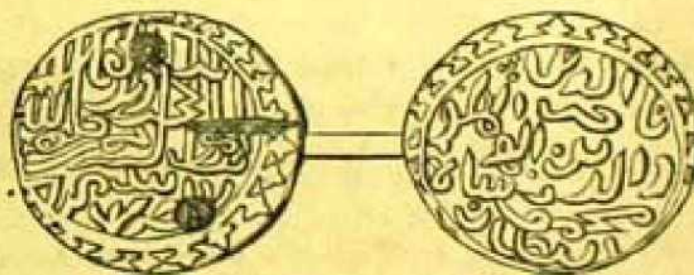
## XII. Na'siruddi'n Abul Muzaffar Mahmu'd Sha'h (I).

The histories agree in describing him as a descendant of Ilyás Sháh. He seems to have been supported by the old party who were tired of Ahmad Sháh; old families are said to have gathered round him; and Gaur, the old capital, was rebuilt by him. The wars between Jaunpúr and Dihlí, as Firishtah correctly observes, gave Bengal rest, and Mahmúd Sháh, according to the histories, reigned in peace for thirty-two years, or according to some "not more than twenty-seven years," and died in A. H. 862.

In the histories, he is called by his first name Náçir Sháh, instead of Mahmúd Sháh. Bengal history presents several examples of similar inversions, if the retention of the familiar name of the king can be called so.

The chronology of Mahmúd Sháh's reign has been considerably cleared up by a coin in the possession of Col. H. Hyde, the President of our Society, and by the inscriptions received from General Cunningham and Dr. Wise. The dates now ascertained are 846; 861; 20th Sha'bán, 863; 28th Zil Hajjah, 863. Again, the oldest inscription of Bárbak Sháh, discovered by Mr. E. V. Westmacott, is dated Çafar, 865. We are, therefore, certain that Mahmúd Sháh must have reigned at least till the beginning of 864. But if the second statement of the histories regarding the length of his reign (27 years) be correct, we would get the year 836 as the first year of his reign, the very year in which Marsden's Ahmad Sháhí was struck. This would make Mahmúd Sháh an opposition king for the whole length of Ahmad Sháh's reign, which the histories say was not the case. We require, therefore, more evidence to fix the beginning of Mahmúd's reign.

1. *Coin of Mahmúd Sháh.* New variety. Silver. Weight, 165·08 grains. (Col. H. Hyde.) A. H. 846. No mint-town. The margin contains little crosses.



OBVERSE.—المؤيد بقائيد الرحمن حجت خليفة الله [في الزمان] ضرب سنة ٨٤٦

REVERSE.—ناصر الدنيا والدين ابو المظفر محمود شاه السلطان

He who is assisted by the assistance of God, the evidence of the Khalifah of God in this age, Náçiruddunjá waddín Abul Muzaffar Mahmúd Sháh, the king. A. H. 846.

Mahmúd Sháh's coins hitherto published are almost valueless. The cabinet of the Asiatic Society has only one specimen, without date or mint-



town, like No. 8 of Laidley's Plate of Bengal coins (Journal XV, for 1846, Pl. iv). Some have the Muhammadan creed on one side in (so called) Tughrá characters, and, on the other side, the name of the king *Náçirud-dunyá waddin Abul Muzaffar Mahmúd Sháh*. The margin of the specimen is unfortunately cut away. Mr. Laidley's No. 7 has the same obverse; the reverse is the same as on Hamzah Sháh's coins—\*

ناصر امير المؤمنين غوث الاسلام و المسلمين خلد ملكه

But the three inscriptions of this king are very valuable, viz., one from Sâtgaon, dated A. H. 861, or 1457 A. D.; one from Dháká, dated 20th Sha'bán, 863, or 13th June, 1459;† and one from Gaur, discovered by General Cunningham, dated 28th Zil Hijjah, 863, or 26th October, 1459.

No. 9. *The Mahmúd Sháh Inscription of Sâtgaon* (A. H. 861).‡

قال الله تعالى انما يعمر مساجد الله من آمن بالله و اليوم الآخر و اقام الصلوة و آتى الزكوة و لم يخش الا الله فعسى اولئك ان يكونوا من المهتدين و قال عز من قائل جل جلاله و عم نواله ان المساجد لله فلا تدعوا مع الله احدا و قال النبى صلى الله عليه و سلم و على آله و اصحابه من بنى مسجدا لله بنى الله له بيتا فى الجنة \* \* \* \* \* المؤيد بتأييد [الرحمن] \* \* \* \* \* بالحجة و البرهان غوث الاسلام و المسلمين ناصر الدنيا و الدين ابو المظفر [محمود] و شاه السلطان خلد ملكه و سلطانه و اعلى امرة و شانه بفناء الخان الاعظم المعظم المكرم المخاطب بخطاب

\* I am doubtful whether Laidley's Nos. 11 and 12 belong to this king. The obverse of No. 11 consists of seven circles, four with 'Náçir Sháh,' and three with 'assultán;' the reverse is illegible. It is unlikely that the king should have called himself Náçir Sháh on some coins, when other coins and all inscriptions give his royal name 'Mahmúd Sháh.' Laidley's No. 12 is curious; it shews on the reverse the *kalimah* in clumsy Kufic characters, and on the obverse five circles with 'Mahmúd Sháh assultán.' In the centre of the piece are three rings, thus—°.°. Three rings thus arranged are Timur's arms; vide Vambéry's Bokhara, p. 205.

† Received from Dr. J. Wise. It was published in Journal, As. Soc. Bengal, 1872, Part I, p. 108.

‡ This inscription was first published by me in Journal, As. Soc. Bengal, for 1870, Part I, p. 293, where notes will be found on the locality. The name 'Mahmúd' is broken away, only the *dál* is left, which in 1870, when I copied the inscription from the stone, I mistook for a *nán*. General Cunningham's rubbing leaves no doubt that it is a *dál*. I therefore republish the inscription with this important correction.



تربیت خان سلمہ اللہ تعالیٰ عن آفات آخر الزمان بمنہ و کمال کرمہ فی  
سنة الحادی و ستین و ثمانمائة ۥ

God Almighty says, 'Surely he builds the mosques of God who believes in God and the last day, and establishes the prayer, and offers the legal alms, and fears no one except God. It is they that perhaps belong to such as are guided. And how beautifully does He whose glory shines forth and whose benefits are general, say, 'Surely the mosques belong to God, do not call on any other besides Allah.' And the Prophet says,—may God's blessing rest upon him and upon his house and his companions!—'He who builds a mosque for God, will have a house built for him by God in Paradise.'

• • • • by him who is assisted by the help of the Merciful, • • • by proof and evidence, the help of Islām and the Muslims, Nāqiruddunyā waddīn Abul Muzaḥḥar [Mahmūd] Shāh, the king,—may God perpetuate his kingdom and his rule and elevate his condition! It was built by the great Khān, the exalted, the liberal, who has the title of Tarbiyat Khān—may God Almighty protect him from the evils of the end of time by His grace and the perfection of His mercy! In the year 861. [A. D. 1457.]•

No. 10. ✓ *The Mahmūd Shāh Inscription of Hazrat Panḍuah*, (Pl. V, No. 4).

General Cunningham found this inscription at the Chhotā Dargāh in Panḍuah.

قال الله تعالى كل نفس ذائقة الموت و قال الله تعالى اذ جاء اجلهم  
فلا يستأخرون ساعة ولا يستقدمون • قال الله تعالى كل من عايها فان  
و يبقى وجه ربك ذو الجلال و الاكرام • و انتقل مخدومنا العلامة استاد  
الائمة برهان الامة شمس الملة حجة الاسلام و المسلمين نافع الفقراء و المساكين  
مرشد الواصلين و المسترشدين من دار الفناء الى دار البقاء الثامن و العشرين  
من ذى الحجة في يوم الاثنين و كان ذلك من السنة الثالثة و الستين  
و ثمانمائة في عهد سلطان السلاطين حامى بلاد اهل اسلام و المسلمين  
ناصر الدنيا و الدين ابوالمظفر محمود شاه سلطان صانه الله بالامن و الامان  
وبنى هذا الروضة خان الاعظم لطيف خان سلمه من البليات و الآفات ۥ

God Almighty says, 'Every creature tasteth death' (Qor., III, 182). He also says, 'When their fate comes, they cannot delay it an hour, nor anticipate it' (Qor., X, 50). He also says, 'Everything on earth fadeth, but the face of Thy Lord remaineth full of glory and honor.'



Our revered master, the teacher of Imáms, the proof of the congregation, the sun of the Faith, the testimony of Islám and of the Muslims, who bestowed advantages upon the poor and the indigent, the guide of saints and of such as wish to be guided, passed away from this transient world to the everlasting mansion, on the 28th Zil Hijjah, a Monday, of the year 863, during the reign of the king of kings, the protector of the countries of the Faithful, Náçiruddunyá waddín Abul Muzaffar Mahmúd Sháh, the king,—may God keep him in safety and security! This tomb was erected by the great Khán, Latíf Khán,—may God protect him against evils and misfortunes!

### XIII. Ruknuddi'n Abul Muja'hid Ba'rbak Sha'h.

The histories agree in calling him the son of Náçir Sháh, *i. e.*, Mahmúd Sháh, and in assigning him a reign of seventeen years. The Riyáz says, seventeen, *or sixteen*; and the latter statement is evidently nearer the truth, as by the preceding inscription Bárbak cannot have commenced to reign before 864.

To judge from the Tribení inscription published by me in this Journal for 1870, p. 290, it would appear that Bárbak as prince was governor of south-western Bengal in 860; but the inscription styles him 'Malik,' not 'Sultán,' from which it is clear that he was no rebel.

The following inscription, which Mr. E. V. Westmacott found in Dínájpúr, is very valuable, as it proves that Bárbak was king in the very beginning of 865.

#### No. 11. *The Bárbak Sháh Inscription of Dínájpúr.*

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ • نصر من الله وفتح قريب و بشر المؤمنين \*  
فَاللَّهُ خَيْرَ حَافِظٍ وَهُوَ أَرْحَمُ الرَّاحِمِينَ \*

بِذَا الْمَسْجِدَ فِي الْعَهْدِ السُّلْطَانِ ابْنِ سُلْطَانِ رُكْنِ الدُّنْيَا وَالدِّينِ أَبُو  
الْمُجَاهِدِ بَارْبَكْ شَاهِ سُلْطَانِ ابْنِ مُحَمَّدٍ شَاهِ سُلْطَانِ خَلَّدَ اللَّهُ مَلِكُهُ وَ سُلْطَانُهُ  
بِحُكْمِ إِشَارَةِ خَانَ اعْظَمَ وَ خَاقَانَ مَعْظَمٍ يَهْلُوِي الْعَصْرَ وَالزَّمَانَ أَلْغِ أَقْرَارَ ( ؟ )  
خَانَ سِرْ لَشَكْرٍ وَ زَيْرِ بَانِي خَيْرِ مَسْجِدٍ مَذْكُورٍ وَمُؤَمَّتٍ كَرْدُهُ رَوْضَهُ خَانَ اعْظَمَ  
وَ خَاقَانَ مَعْظَمٍ أَلْغِ نَصْرَتِ خَانَ جَنْكِدَارٍ وَ شَقْدَارِ مَعَامَلَاتِ جَوْرِ وَ بَرِّ  
وَ مَحَامِلَاءِ دِيْكَرِ فِي التَّارِيخِ السَّادِسِ وَ عَشْرٍ مِنَ الشَّهْرِ الصَّفْرِ خْتَمَهُ اللَّهُ  
بِالْخَيْرِ وَالظَّفَرِ شَهْرُ سَنَةِ خَمْسٍ وَسِتِّينَ وَ ثَمَانِ مِائَةٍ ॥

In the name of God the merciful and the element! A victory from God and a near success, and announce it to the Faithful (Qor. LXI, 13). God is excellent as a protector, and He is the most merciful of the merciful (Qor. XII, 64).



The building of this mosque (took place) in the reign of the king, the son of a king, Ruknuddunyá waddín Abul Mujáhid Bárbaḳ Sháh, the king, son of Mahmúd Sháh, the king,—may God continue his kingdom and rule!—by the direction of the great Khán, the noble chief, the hero of the age and the period, Ulugh Iqrár (?) Khán, commander and wazír, builder of this religious edifice, the said mosque. And the repairer of the tomb (is) the great Khán and noble chief Ulugh Nuçrat Khán, the jangdár and shiqdár of the affairs of Jor and Barúr and of other Mahallahs. Dated, the 16th day of the month of Safar,—may God bring it to a happy and successful end!—of the year 865. (1st December, 1460, A. D.)\*

*Note on a Bárbaḳ Sháh Inscription from Dínájpúr.—By E. VESEY WESTMACOTT, Esq., C. S.*

‘I send a rubbing of an inscription of the reign of Barbak Shah, A. H. 865. It states him to have been the son of Mahmood Shah, a point upon which a bit of additional evidence is not without value. It is very clearly cut on the usual black stone, which is commonly called basalt, but which is more like a slate. In one place I found the surface flaking off, and so brittle, that I was afraid to clear it of the whitewash, with which it was clogged, as thoroughly as I should have liked. The slab is about twenty-two inches by ten, and the inscription is in five lines.

‘It is let into the eastern front of a little brick-built mosque adjoining the grave of Chihil Ghazee, the Peer, mentioned by Dr. Buchanan in his report on Dinagepore, p. 29. The grave, surrounded by an iron railing, is 54 feet long, and is supposed to correspond to the stature of the saint. It is on the north side of the path up to the mosque, some hundred yards to the west of the Darjeeling road, four miles north of Dinagepore, and not far from the Gopalgunge temples. The Mootawallee is a very ignorant fellow, and I have found out nothing of the Peer beyond his name.

‘The founder of the mosque was “Shikdár of the affairs of Baroor,” and of another place. Baroor I take to be the parganah of that name, now in Poorniah, outside the western border of Dinagepore.

‘On each side of the inscription has been let into the wall a stud, or circular piece, of the same stone, which have on the right side of each a groove, as if for a clamp, which makes me think they were not originally cut for their present position. They are about eight inches in diameter. The centre of each bears in Tughra the *muhr i nubuwwat* or ‘seal of prophethood,’ surrounding this is an inscription of which I send rubbings, but which neither the Moulawi nor I can decipher. In an outer ring, half an inch lower, the northern stone bears the inscription—

\* I take this opportunity to correct the wrong reading of a title in the Bárbaḳ Sháh Inscription published by me in this Journal, for 1870, Pt. I., p. 290, Inser. VII., where for *جامدار غدير محلي* I should have read *جامدار غدير محلي* *jámadár i gháir i mahallí*, as explained in Journal for 1872, Pt. I., p. 106.



این نقشه مهر نبوت که در میان دو شانه مبارک محمد مصطفی صلی  
الله علیه و سلم بود ۱۱

This is the picture of the seal of prophetship which was between the two shoulders of Muhammad Muṣṭafā—may God bless him!

‘As door steps to the mosque and to the enclosure surrounding the grave are pieces of hewn stone, similar pieces lying close by; they are more or less carved and appear to be parts of doorways. Such stones are common in all parts of the district, and are said by tradition to have been brought from Bannagar, near Debkot. They are similar to the remains of Gour and Poroowa [Paṇḍuah]. On the south side of the path is the female portion of a *ling*, of large size, a queer ornament for the premises of a Mahomedan saint.

‘The mosque is somewhat ruinous, the roots of plants are tearing it in pieces. I think that it is of greater antiquity than most in the district, from the strength of the brick arches, the workmanship of the dome, and the fact that the hewn stones which are built into the inner side of each archway, have been cut to fit their places, although bearing marks of clamps to show they have been taken from another building.

‘Three archways, twenty-eight inches wide and nearly six feet high, lead into a vestibule twelve feet by five and a half, at each end of which a similar archway opens to the north and south. Three more archways lead into a chamber, twelve feet square, surmounted by a dome, now cracked in several directions. In the west wall are three niches, and two small archways on the north and south lead into the open air. On the inner side of each of the ten archways, a little below the spiring of the arches, hewn stones, six or eight inches thick, are carried through the whole thickness of the wall which is three feet through. It is unusual in Dinagepore to find that the workmen have dressed the stone as they have here.

‘It is usual to build them in just as they are, often with most incongruous Hindoo carvings upon them.’

Regarding the “seal of prophetship,” it is said in the *Madārij-un-nubuwwat* by ‘Abdul Haq of Dihlī, that the seal between the shoulders of the Prophet was a thing raised above the surrounding parts of his blessed body, resembling the body in colour, smoothness, and brightness. And it is stated in the *Mustadrīk* that Wahb ibn Munabbih said that no prophet was sent on earth that had not the sign of prophetship on his right hand, except the Prophet, who had the sign between the shoulders. Shaikh Ibn Hajar in his commentary to the *Mishkāt* says that the seal contained the words *والله وحده لا شريك له توجّه حيث كنت فانك منصور* “and God is one, He has no associate; pay attention wherever thou art, for thou art victorious.”



Some traditions say that the seal was of light, and others, that it vanished from the skin when the Prophet expired, so much so that people knew by its disappearance that the prophet was really dead. Several authorities compare the seal to the egg of a pigeon: some call it a غدة حمراء, 'a red fleshknot,' and others say that it was a wart covered with hair.

Marsden gives a Bárbak coin which clearly shews the year 873.\* The cabinet of the Asiatic Society of Bengal contains the following:—

1. *Vide* Pl. IX, No. 7. New variety. Silver. Weight 164·025 grains. (Asiatic Society's Cabinet.) A specimen in the possession of Bábu Rájendralála Mitra weighs 164·335 grains.

OBVERSE.—\* \* \* لا اله الا الله محمد رسول الله السلطان العالم العادل

REVERSE.—• • • الاعظم الاعظم باريكشاه السلطان بن محمود شاه السلطان

Neither of these coins give Bárbak's full name.

#### XIV. Shamsuddi'n Abul Muzaffar Yu'suf Sha'h, son of Bárbak Sháh.

Firishtah represents him as a learned man, who, after his accession charged the 'Ulamá to see the law of the Prophet carried out. 'No one dared drink wine.'

The histories assign him a reign of seven years and six months, and say that he died in 887. If so, the end of his reign was marked by a successful rebellion of his uncle Fath Sháh; but it is just as likely that Yúsuf died early in 886.

Marsden has a coin of this king without year, and Laidley gives a new variety of 884.† General Cunningham's inscriptions give the following dates—

1. Paṇḍuah, 1st Muharram, 882, or 15th April, 1477.
2. Hazrat Paṇḍuah, 20th Rajab, 884, or 8th October, 1479.
3. Gaur, 10th Ramazán, 885, or 13th November, 1480.

No. 12. ✓ *The Yúsuf Sháh Inscription of Paṇḍuah, Húglí District.‡*

(Pl. VI, No. 1.) A. H. 882.

قال الله تعالى ان المساجد لله فلا تدعوا مع الله احدا و قال عليه السلام  
من بنى مسجدا في الدنيا بني الله له في الآخرة سبعين قصرا • بنى  
المسجد في عهد السلطان الزمان المريد بتأييد الديان خليفة الله بالحجة

\* *Vide* also Journal, As. Soc. Bengal, 1870, Part I., p. 299, note.

† Bábu Rájendralála Mitra has a specimen (like Laidley's) of 883 خزانة. The margin, similarly to Fath Sháh's coins, contains shamrocks separated by dots. Weight 163·65 grains.

‡ *Vide*, Journal, As. Socy., Bengal, 1870, Pt. I., p. 300.



و البرهان السلطان ابن السلطان ابن شمس الدنيا و الدين  
ابو المظفر يوسف شاه السلطان ابن باربك شاه السلطان ابن محمود شاه  
السلطان خلد الله ملكه و سلطانه بني هذا المسجد المجالس المجالس  
مجلس معظم المكرم صاحب السيف و القلم يهلوى العصر و الزمان الخ  
مجلس اعظم ساه الله تعالى في الدارين مؤرخا في اليوم الرابع الغرة  
من شهر محرم سنة اثنى و ثمانين و ثمانماية و تم بالخير ١١

God Almighty says—' Surely the mosques belong to God. Do not call on any one besides Allah. And he upon whom God's blessing rest, says, 'He who builds a mosque in the world, will have seventy castles built for him by God in the next world.' This mosque was built during the reign of the king of the age, who is assisted by the assistance of the Supreme Judge, the viceregent of God by proof and evidence, the king, the son of a king who was the son of a king, Shamsuddunyá waddín Abul Muzaffar Yúsuf Sháh, the king, son of Bárbak Sháh, the king, son of Mahmúd Sháh, the king—may God perpetuate his kingdom and rule! The mosque was built by the Majlis ul Majális, the great and liberal Majlis, the lord of the sword and the pen, the hero of the age and the period, Ulugh Majlis i A'zam—may God Almighty protect him in both worlds!

Dated Wednesday, 1st Muharram, 882. Let it end well!

No. 13. *The Yúsuf Sháh Inscription of Hazrat Panduah. A.H. 884*

قال النبى صلى الله عليه و سلم من بني مسجدا لله بني الله له قصر  
في الجنة \* بني هذا المسجد في زمن السلطان العادل البادل شمس  
الدنيا و الدين ابو المظفر يوسف شاه السلطان بن باربك شاه السلطان بن  
محمود شاه السلطان خلد الله ملكه و سلطانه مجلس المجالس مجلس  
اعلى اعلاه الله تعالى شأنه في الدارين و كان ذلك في التاريخ هجرة  
النبى صلى الله عليه و سلم في يوم الجمعة عشرين شهر رجب رجب قدرة  
سنة اربع و ثمانين و ثمانماية ١١

The Prophet (may God's blessing rest upon him!) says, 'He who builds a mosque for God, shall have a castle built for him by God in Paradise.' This mosque was built in the reign of the just and liberal king Shamsuddunyá waddín Abul Muzaffar Yúsuf Sháh, the king, son of Bárbak Sháh, the king, son of Mahmúd Sháh, the king,—may God perpetuate his kingdom and rule!—by the Majlis ul Majális, the exalted Majlis,—may God whose dignity is exalted also exalt him in both worlds! And this took place on Friday, the 20th Rajab (may the dignity of the month increase!) of the year 884, according to the era of the flight of the Prophet, upon whom God's blessing rest!



No. 14. *The Yúsuf Sháh Inscription of Gaur.* A.H. 885.

قال النبي صلى الله عليه و سلم من بنى مسجدا لله بنى الله  
تعالى له سبعين قسرا في الجنة \* بنى هذا المسجد في عهد السلطان  
ابن السلطان بن السلطان باريك شاه السلطان بن محمود شاه السلطان \*  
بنى هذا المسجد خان اعظم و خاقان معظم \* \* \* بتاريخ دهم ماه مبارك  
رمضان سنة خمس و ثمانين و ثمانماية ١١

The Prophet, &c. &c., [as before]. This mosque was built in the reign of the king, the son of a king who was the son of a king, Shamsuddunyá waddín Abul Muzaffar Yúsuf Sháh, the king, son of Bárbak Sháh, the king, son of Mahmúd Sháh, the king. The mosque was built by the great Khán, the exalted Kháqán, \* \* \* \* [not legible.]

Dated, the 10th day of the blessed month of Ramazán, 885.

A rubbing of another Yúsuf Sháhi Inscription has been received from Dr. J. Wise. Dr. Wise says—"The inscription is from one of the four mosques which surround the tomb of Sháh Jalál at Silhat. It is a fine *Tughrá* inscription, but unfortunately one-third of it has been built into the masonry, the slab forming the lintel of the door!"

The inscription is—

• No. 15. *The Yúsuf Sháh Inscription of Silhat.*

\*\*\* ابو المظفر يوسف شاه ابن باريك شاه السلطان ابن محمود شاه  
السلطان خلد الله ملكه و سلطانه و بازي هذا المسجد المجلس الاعظم  
المعظم الدستور الساعي في الخيرات و المبرات المجلس الاعلي حفظ الله  
تعالى عن الآفات \*\*\*

\*\*\* Abul Muzaffar Yúsuf Sháh, son of Bárbak Sháh, the king, son of Mahmúd Sháh, the king—may God perpetuate his rule and kingdom! And the builder is the great and exalted Majlis, the wazír (*dastúr*), who exerts himself in good deeds and pious acts, the Majlis i A'lá—may God preserve him against the evils and \* \*

To judge from Dr. Wise's rubbing, the inscription, in point of beauty, ranges immediately after the Sikandar Sháh inscription No. 8, mentioned above, and it would be well, if the *Sar i qaum*, 'the head of the clan,' as the Mutawallí of the tomb is called, would take steps to have this beautiful inscription taken out of the masonry, and thus restore it to light and history.

Dr. Wise has also sent the following interesting note on Sháh Jalál.



*Note on Sháh Jalál, the patron saint of Silhat.*—By DR. J. WISE,  
DHA'KA.

The following abridgment of the life and miraculous adventures of Sháh Jalál, the conqueror of Silhat in the 14th century, is taken from the *Subail-i-Yaman*, written by Náçiruddín, late Munçif of Silhat; his work was composed in the year 1859. It is an abstract of two earlier histories, one of which is called the "*Risalah of Muhí-uddín Khádim*;" the other, by an unknown author, is designated the "*Rauzatus-Salátn*."

According to the Munçif, Sháh Jalál Mujarrid Yamaní was the son of a distinguished saint, whose title of Shaikhush-Shuyúkh is still preserved. He belonged to the Quraish tribe. Sháh Jalál's father was named Muhammad; his grandfather Muhammad Ibráhim. His mother was a Sayyidah. She died within three months of the birth of this her only son. His father died fighting in a *jihád* against the infidels.

The youth was adopted by his maternal uncle Sayyid Ahmad Kabir Suhrwardi, a Darwish of no mean accomplishments, who had studied under the renowned Sháh Jalál ud-dín Bukhári.

For thirty years Sháh Jalál is said to have lived in a cave without crossing the threshold. He was at last summoned from his seclusion by his uncle, owing to the following circumstance. One day seated in front of his house at Makkah, lost in contemplation, Sayyid Ahmad saw a doe big with young approach him. The doe related how a lion had appeared in the wood in which she lived, and was killing all her comrades. She finally requested him to come and drive away the brute. Sháh Jalál was called forth from his cave, and directed to go and turn out the lion. On the way he puzzled himself what was to be done when the lion was seen. Unexpectedly, however, he met the animal, and the lustre which shot from his eye was so dazzling, that the lion fled and was heard of no more.

On his return, Sayyid Ahmad was so pleased with his behaviour, that he gave him a handful of earth and told him to go forth and wander over the world, until he found earth of similar colour and smell. Where he did, he was there to make his abode.

Hindústán was then the land to which adventurers directed their steps, and Sháh Jalál followed their example. He passed by a city of Yaman, the king of which was informed that a great Darwish was near. He accordingly sent a cup of deadly poison instead of sharbat, to test his power. Sháh Jalál at once divined its nature, and informed the king's messengers that the instant the draught was swallowed, the king would die. The poison was quaffed without injury to the saint, but, as foretold, the king died.



Sháh Jalál proceeded on his course, but four days afterwards he was overtaken by the Sháhzádah, who had determined on leaving his kingdom and on following the saint in his wanderings.

After journeying for many days, they arrived at Dihlí, where the celebrated Nizám-uddín Auliya then resided. When Sháh Jalál entered the city, Nizám-uddín was sensible of the arrival of a saint. He, therefore, sent messengers to search for him and to invite him to come and eat with him. Sháh Jalál accepted the invitation and gave the messengers a bottle filled with cotton, in the centre of which he placed a live coal. The receipt of this wonderful bottle satisfied Nizám-uddín that this was no common Darwish. He accordingly treated him with every honour, and on his departure he gave him a pair of black pigeons.

The narrative is now transferred to Silhat. In a Mahallah of that city, called Tol-takar, resided at this period Shaikh Burhán-uddín. How a Muhammadan got there, or what he was doing so far away from his own countrymen, puzzles Muhí-uddín, who thinks that this solitary believer must have belonged to some Hindú family, and that he could not have been a true Muhammadan. Burhán, the story goes, had made a vow, that if he was blessed with a son, he would sacrifice a cow. A son being born, he performed his vow; but as bad luck would have it, a kite carried off a portion of the flesh and dropped it in the house of a Brahman. The incensed Brahman went to Gaur Gobind, the king of Silhat, and complained. The king sent for Burhán and the child; and on the former confessing that he had killed a cow, the child was ordered to be put to death, and the right hand of the father cut off.

Burhán-uddín left Silhat and proceeded to the court of Gaur. The king on hearing of what had occurred, ordered his nephew (*bhánjá*) Sultán Sikandar, to march at once towards the Brahmaputra and Sunnārgaon with an army.

When news reached Silhat that an army was approaching, Gaur Gobind, who was a powerful magician, assembled a host of devils and sent them against the invaders. In the battle that ensued, the Muhammadans were routed, and Sultán Sikandar with Burhán-uddín fled. The Prince wrote to his uncle, informing him of the defeat and of the difficulties met with in waging war against such foes. The monarch on receiving the news, gathered together the astrologers, and conjurers, and ordered them to prophesy what success would attend a new campaign. Their reply was encouraging, and Naqir-uddín Sipahsálár was directed to march with a force to the assistance of Sultán Sikandar. This re-inforcement, however, did not restore courage to the Muhammadan soldiery, and it was decided to consult with Sháh Jalál, who with 360 Darwishes was waging war on his own account with the infidels. The Sultán and Naqiruddín proceeded to the camp of the saints,



where the Sháh encouraged them by repeating a certain prayer, and promised to join their army and annihilate the hitherto victorious army of devils. Along with the Sháh were Sayyid Muhammad Kabír, Sayyid Háji Ahmad Sání, Shaikh Abul Muzaffar, Qází Amínuddín Muhammad, Sháhzádah Yamání, &c., &c.

The advance of this army of saints was irresistible. The devils could not prevail against them, and Gaur Gobind, driven from one position to another, at last sought refuge in a seven-storied temple in Silhat, which had been built by magic. The invaders encompassed this temple, and Sháh Jalál prayed all day long. His prayers were so effective, that each day one of the stories fell in, and, on the fourth day, Gaur Gobind yielded on the promise of being allowed to leave the country.

The terms agreed to, Gaur Gobind retired to the mountains (*kohistán*). While at his protracted prayers, Sháh Jalál discovered that the earth on which he was kneeling was of the same colour and smell as that given him by the Makkah Darwísh. He, therefore, determined on establishing his abode there. With him remained Sháhzádah Yamání, Háji Yúsuf, and Háji Khalíl. The rest of the saints retired with the army.

The remainder of Sháh Jalál's life was spent in devotion and in miraculous actions which still live in the traditions of the people. It is believed that Sháh Jalál never looked on the face of woman. One day, however, standing on the bank of a stream, he saw one bathing. In his simplicity, he asked what strange creature it was. On being informed, he was enraged, and prayed that the water might rise and drown her. He had no sooner expressed this wish than the water rose and drowned her. Other less questionable actions are related regarding him. For instance, he caused the corpse of Naqír-uddín Sipahsálár, who died at Silhat, to disappear from a Mosque, while the friends were mourning over it. On another occasion he wished that a fountain like the holy Zamzam of Makkah might spring up near his abode, and immediately the fountain appeared.

Sháh Jalál was translated (*intiqál*) the 20th of the "Kali Chand," A. H., 591, in the 62nd year of his age.

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Dr. Wise also writes—"It is a curious fact that the Sháh is invoked by the Silhat *gánjah* (hemp) smokers. I have got a Silhat lunatic, who every day before smoking his *chillum* of tobacco invokes the saint in the following manner:—

*Ho! Bisheshwar Lál,  
Tín lál'h Pír Sháh Jalál,  
Ek bár, dubará, Jagannath jí ká piyára  
Kháne ká dúdh bhát, bajáne ko dotára.*



The chronology of the 'Life of Sháh Jalál,' as Dr. Wise observes, is confused. His death is put down as having occurred in 591, A.H., and he said to have visited Nizámuddín Auliá, who died in 725, A. H. Again, according to the legends still preserved in Silhat, the district was wrested from Gaur Govind, the last king of Silhat, by king Shamsuddín in 1384 A. D., or 786 A. H., during the reign of Sikandar Sháh, whilst 'king Shamsuddín' can only refer to Shamsuddín Ilyás Sháh, Sikandar's father.

Dr. Wise also draws attention to the statement made by Ibn Batútah who "from Sadkáwán [Chátgáon] travelled for the mountains of Kámrú [Kámrúp, western Ásám]. \* \* His object in visiting these mountains was to meet one of the saints, namely, Shaikh Jalál uddín of Tabríz."\* Jalál then gives him a garment for another saint 'Burhán uddín,' whom Ibn Batútah visits in Khánbálik (Pekin). Ibn Batútah, as remarked above, was in Eastern Bengal, when Fakhruddín was king (739 to 750, A. H.). But here again the confusion of dates and names is very great. Jalál uddín of Tabríz died, as we saw above, in 642, and the Silhat Jalál is represented as a man from Yaman.† Neither Jalál nor Burhánuddín is mentioned in the biographical works of Muhammadan Saints.

#### XV. Sikandar Sha'h II.

The Riyáz says that this king was the *son* of Yúsuf Sháh; the other histories say nothing regarding his relationship. Stewart calls him "a youth of the royal family," but afterwards calls Fath Sháh his "uncle." The Riyáz says that he was deposed on the same day on which he was raised to the throne; the Áin i Akbarí gives him half a day; my MS. of the Tabaqát, two and a half days; Firishtah mentions no time; and Stewart gives him two months.

#### XVI. Jala'uddi'n Abul Muzaffar Fath Sha'h, son of Mahmúd Sháh.

Fath Sháh was raised to the throne, as "Sikandar Sháh did not possess the necessary qualifications." The histories say that his reign lasted from 887 to 896, A. H., and yet, they only give him seven years and five months (Stewart, seven years and six months). The inscriptions and coins, however, given below shew that he reigned in 886; and if the "seven years and five months" are correct, Fath Sháh could only have reigned till 892 or 893, which agrees with the fact that his successor Fírúz Sháh II. issued coins in 893. Fath Sháh was murdered at the instigation of the Eunuch Bárbak.

Laidley has published two silver coins of this king, of which one seems to have been struck at Fathábád in 892. The following is a new variety.‡

\* Lee, Ibn Batútah, p. 195.

† Vide the Silhat Inscription of 1505, given below under Husain Sháh.

‡ The coin given by Marsden as a Fath Sháhi does not belong to this king.



1. *Vide* Pl. IX, No. 8. Silver. Weight, 158·65 grains. *Fathábád*, A. H. 886. (As. Soc. of Bengal, one specimen.) Circular areas. The margin consists of ornamental designs, resembling the niches in mosques and rosettes.

OBVERSE.—جلال الدنيا والدين ابو المظفر فتح شاه سلطان

REVERSE.—ابن محمود شاه السلطان مجده الله الفتح فتح آباد ٨٨٦

Jaláluddunyá waddín Abul Muṣaffar Fath Sháh Sultán, son of Mahmúd Sháh, the king—may God strengthen him with victory! *Fathábád*, 886.

The following five inscriptions of this king have been received by the Society—

1. *Dháká*, 1st Zil Qa'dah, 886, or 2nd January, 1482.
2. *Dhámraí*, 10th Jumáda I., 887, or 27th June, 1482. Published, J. A. S. B., 1872, p. 109.
3. *Bikrampur*, middle of Rajab, 888, or August, 1483.
4. *Sunnárgaon*, Muharram, 889, or beginning of A. D. 1484.
5. *Sátgaon*, 4th Muharram, 892, or 1st January, 1487. Published, J. A. S. B., Pt. I, 1870, p. 294.

No. 16. *The Fath Sháh Inscription of Bandar, near Dháká.*

A. H. 886. (Pl. VII, No. 1.)

The Society is indebted to Dr. J. Wise for this important inscription, regarding which he writes as follows—"The inscription was found on an old Masjid at Bandar, on the banks of a K'hál called Tribení, opposite Khizrpur (Dháká). This K'hál was in former days the junction of the Brahmaputra, Lak'hya, and Ganges. At its opening on the left bank of the Lak'hya, a fort still stands, said to have been built by Mír Jumlah [*vide* Journal, As. Soc., Bengal, 1872, Pt. I, p. 96]. The place called Bandar is now a mile inland (*vide* Pl. IV), but during the height of the rains, the K'hál is navigable for native boats. The inscription is the most perfect as yet met with in this District."

قال الله تعالى و ان المساجد لله فلا تدعوا مع الله احدا \* قال النبى  
صلى الله عليه وسلم من بنى مسجدا بنى الله له قصرا فى الجنة \*  
بنى هذا المسجد المبارك الملك المعظم بابا صالح فى زمان السلطان  
ابن السلطان جلال الدنيا والدين ابو المظفر فتح شاه السلطان ابن محمود  
شاه السلطان خلد الله ملكه و سلطانه فى تاريخ اول شهر ذى القعدة سنة  
ست و ثمانين و ثمانماية من الهجرة النبوية ٨٨٦



God Almighty says, 'The mosques belong to God. Do not associate any one with God.' The Prophet, may God bless him!—says, 'He who builds a mosque, will have a castle built for him by God in Paradise.'

This auspicious mosque was built by the great Malik Bá bá Sálíh in the reign of the king, the son of the king, Jaláuddunyá waddín Abul Muzaffar Fath Sháh, son of Mahmúd Sháh, the king—may God perpetuate his kingdom and rule!—on the 1st Zil Qa'dah, 886, A. H. (2nd January, 1482, A. D.).

The builder of the mosque appears to have been a very pious man. Three miles west from Sunnargáon, Dr. J. Wise discovered a mosque built by the same man, and adjoining the mosque his tomb. The masjid is within half a mile of the mosque to which the preceding inscription belongs, and was built in 911, A.H. A portion of the date of the inscription is designedly, as it would appear, chipped off.

✓ No. 17. *The Bá bá Sálíh Inscription of Sunnargáon.*

قال الله تبارك وتعالى وان المساجد لله فلا تدعوا مع الله احدا بنى هذا  
المسجد المبارك في زمن السلطان علاؤ الدنيا والدين ابو المظفر حسين  
شاه السلطان خلد الله ملكه الملك المعظم المكرم خادم النبي حاجي  
الحرمين وزائر القدمين حاجي بابا صالح \*\*\* دي \*\*\* وتسعمائة من  
الجمرة النبوية ||

God Almighty says, &c. [as above]. This blessed mosque was built in the reign of Sultán 'Aláuddunyá waddín Abul Muzaffar Husain Sháh, the king,—may God perpetuate his reign!—by the great and liberal Malik, the servant of the Prophet, who has made a pilgrimage to Makkah and Madínah and has visited the two footprints of the Prophet, Há jí Bá bá Sálíh. Dated 911, A.H.

The wanting words are no doubt *عشر حادي* عشر حادي, which would be 911. A small slab let in the brick work of Bá bá Sálíh's tomb contains the following date of his death.

✓ No. 18. *The Inscription on Bá bá Sálíh's Tomb.*

الله لا اله الا هو ليجمعنكم الى يوم القيامة لا ريب فيه و من اصدق من  
الله حديثا ||

\*\*\* روضة الحاجي الحرمين الزائر القدمين خادم النبي عليه السلام  
حاجي بابا صالح الم \*\*\* في تاريخ \*\*\* ربيع الاول من سنة اثني \*\*\*

O God! There is no God but He. He will surely collect you towards the day of resurrection, and who is more truthful a speaker than God? [Qor., IV. 89.] \*\*\* the tomb of the pilgrim to Makkah and Madínah, who has visited both footprints of the Prophet, the servant of the Prophet (upon whom be peace!), Há jí Bá bá Sálíh \*\*\* (*almutawaffá*, who died) on ... Rabi' I., ... 2.



Thus it seems that he died in A. H. 912. Dr. Wise says—“No one here has heard of the name of this pious man. The neighbourhood of these mosques is very old. Qadam Rasúl (the ‘Footprint of the Prophet’), a famous place of pilgrimage, on a mound some sixty feet high, is a little to the north-west. Gangakol Bandar is on the west, and across the Lak’hya River is Khizrpúr with the ruins of what I believe was the residence of ‘Isá Khán, mentioned in the *Áin i Akbari*.”

A third mosque built by Bába Sálíh is in ‘Azímnagar, District Dháká.

No. 19. *The Bába Sálíh's Inscription of 'Azímnagar.*

قال الدّبيّ صلّى الله عليه و سلّم عجلوا بالصّلاة قبل الفوت و عجلوا  
بالذّوبة قبل الموت \* بنى هذا المسجد المبارك الملك المعظّم المكرم  
بابا صالح و قد تمّ بناء هذا المسجد في أوّل المحرم سنة ٩١٠

The Prophet—may God bless him!—says, ‘Make quick the prayer before the end, and hasten the naubat before death. This blessed mosque was built by the exalted, liberal Malik, Bába Sálíh, and the building was completed on the first Muharram 910 [or 901,—the numbers are unclear].

No. 20. *The Fath Sháh Inscription on Ádam Shahíd's Mosque at Bikrampúr (Dháká District). A. H. 888.*

General Cunningham and Dr. J. Wise have each sent rubbings of this inscription.

قال الله تعالى و إنّ المساجد لله فلا تدعوا مع الله احدا قال الدّبيّ  
صلّى الله عليه و سلّم من بنى مسجدا في الدّنيا بنى الله له مثله في  
الجّنة بنى هذا المسجد الجامع الملك المعظّم ملك كافور في زمان  
السلطان ابن السلطان جلال الدّنيا و الدّين ابو المظفر فتح شاه السلطان  
ابن محمود شاه السلطان في تاريخ اوسط شهر رجب سنة ثمان و ثمانين  
و ثمانماية ١١

God Almighty says, &c., [as above]. This Jámí' Masjid was built by the great Malik, Malik Káfúr, in the time of the king, the son of the king, Jaláluddunyá waddín Abul Muzaffar Fath Sháh, the king, son of Mahmúd Sháh, the king, in the middle of the month of Rájab, 888, A. H. (August, 1483, A. D.)

Dr. Wise writes as follows—

‘The Masjid of Ádam Shahíd is in Bikrampúr at a village called Qází Qaḥbah, within two miles of Ballálbárá, the residence of Ballál Sen. Mr.





Taylor, in his "Topography of Dacca" states that Ádam Shahíd, or Báábá Ádam, was a Qází, who ruled over Eastern Bengal. He gives no authority for this statement, and, at the present day, the residents of the village are ignorant of this fact. They relate that Báábá Ádam was a very powerful Darwish, who came to this part of the country with an army during the reign of Ballál Sen. Having encamped his army near 'Abdullahpúr, a village about three miles to the N. E., he caused pieces of cow's flesh to be thrown within the walls of the Hindú prince's fortress. Ballál Sen was very irate, and sent messengers throughout the country to find out by whom the cow had been slaughtered. One of the messengers shortly returned and informed him that a foreign army was at hand, and that the leader was then praying within a few miles of the palace. Ballál Sen at once galloped to the spot, found Báábá Ádam still praying, and at one blow cut off his head.

'Such is the story told by the Muhammadans of the present day, regardless of dates and well-authenticated facts.

'The Masjid of Báábá Ádam has been a very beautiful structure, but it is now fast falling to pieces. Originally, there were six domes, but three have fallen in. The walls are ornamented with bricks beautifully cut in the form of flowers and of intricate patterns. The arches of the domes spring from two sandstone pillars, 20 inches in diameter, evidently of Hindú workmanship. These pillars are eight-sided at the base, but about four feet from the ground they become sixteen-sided. The *mihrábs* are nicely ornamented with varied patterns of flowers, and in the centre of each is the representation of a chain supporting an oblong frame, in which a flower is cut.

'The style of this Masjid is very similar to that of the old Goáldih Masjid at Sunnárgáon and to that of 'Isá Khán's Masjid at Khizrpúr.\*

No. 21 ✓ *The Fath Sháh Inscription of Sunnárgáon. A. H. 889.*

General Cunningham has sent a rubbing of the following inscription—

قال الله تعالى و ان المساجد لله فلا تدعوا مع الله احدا \* وقال النبي  
صلى الله عليه وسلم من بنى مسجدا بنى الله له سبعين قصرا في  
الجنة \* بنى هذا المسجد في عهد السلطان الاعظم المعظم جلال الدنيا

\* Dr. Wise, in one of his letters addressed to the Society, makes the following remark on Sher Sháh's road from the Brahmaputra to the Indus.

"I see in the last volume of Elliot's 'History of India' that doubts are expressed of there ever having been a road made from Sunnárgáon to the Indus by Shér Sháh, as mentioned by Firishtah and others. In this district there are two very old bridges, which local tradition states were constructed by that monarch, and which lie exactly where such a road would have been. One is still used, the other has fallen in."



وَالدِّينِ ابُو الْمُظَفَّرِ فَتْحُ شَاهِ السُّلْطَانِ ابْنِ مُحَمَّدٍ شَاهِ السُّلْطَانِ خَلَّدَ اللَّهُ  
 مَلِكُهُ وَ سُلْطَانُهُ \* بَانِي الْمَسْجِدِ مَقَرِّبِ الدَّوْلَةِ مَلِكٌ . . . الدِّينِ سُلْطَانِي  
 جَامِدَارِ غَيْرِ مُحَاطِي وَ سِرْشَكْرُ وَ زَبِيرِ اَقْلِيمِ مَعْظَمِ آبَادِ وَ نَيْزِ مَشْهُورِ مُحَمَّدِ آبَادِ وَ  
 سِرْشَكْرِ تَهَانِهْ لَادِ وَ كَانَ ذَلِكَ فِي التَّارِيخِ مِنَ الْمُحَرَّمِ سَنَةِ تِسْعٍ وَ ثَمَانِينَ  
 وَ ثَمَانِمِائَةٍ ۥ

God Almighty says, &c., (as before). And the Prophet says, &c., (as before).

This mosque was built during the reign of the great and exalted king, Jalál-uddunyá waddín Abul Muzaḥḥar Fath Sháh, the king, son of Mahmúd Sháh, the king,—may God perpetuate his kingdom and rule! The builder of the mosque is Muqarrab uddaulah, Malik.....uddin, the Royal, keeper of the wardrobe outside the Palace, the commander and wazír of the territory of Mu'azzamábád, also known as Mahmúdábád, and commander of Thánah Láwúḍ. This took place during Muharram, 889. (A. D. 1484.)

The geographical names occurring in this inscription have been discussed above.

#### THE HABSHI' KINGS.

The pretorian band of Abyssinians, which Bárbak Sháh had introduced into Bengal, became from the protectors of the dynasty the masters of the kingdom, and eunuchs were the actual rulers of the country. The very names of the actors during the interregnum between the end of the Ilyás Sháh dynasty and the commencement of the house of Husain Sháh, proclaim them to have been Abyssinian eunuchs;\* and what royalty at that time was in Bengal is well described by Abul Fazl, who says that, after the murder of Fath Sháh, low hirelings flourished;† and Firishtah sarcastically remarks that the people would only obey him who had killed a king and usurped the throne. Faria y Souza also says of the kings of that time:—

"They observe no rule of inheritance from father to son, but even slaves sometimes obtain it by killing their master, and whoever holds it three days they look upon as established by divine providence. Thus it fell out that in 40 years' space they had 13 kings successively."

\* Names as Káfúr (camphor), Qaranful (clove), Fírúz and Fírúzah (turquoise), Almás (diamond), Yáqút (cornelian), Habshí Khán, Indíl, Sídí Badr, &c. Camphor was looked upon as an anti-aphrodisiac (*vide* my Aín translation, p. 385); hence the name was appropriate. The Fath Sháh inscription No. 20 mentions a Malik Káfúr; and we are reminded of the Káfúr Hazárdínárí of 'Aláuddín's reign.

† 'The kings of Bengala, in times past, were chosen of the Abassine or Æthiopian slaves, as the Soldans of Cairo were some time of the Circassian Mamalukes.' Purchas.





The Habshí kings are Sultán Sháhzádah, Fírúz Sháh, and Muzaffar Sháh. Mahmúd Shah II. appears to belong to the old dynasty.

### XVII. Sulta'n Sha'hza'dah.

(Bárbak, the Eunuch.)

The owner of this odd title reigned either two and a half months (Tabaqát and Firishtah), or perhaps eight months (Firishtah), or according to a pamphlet which the author of the Riyáz possessed, six months. He was murdered by

### XVIII. Saifuddi'n Abul Muzaffar Fi'ru'z Sha'h (II.).

(Malik Indíl Habshí.)

He had been a distinguished commander under Fath Sháh, and proved a good king. According to the histories, he died a natural death after a reign of three years, in 899,—a wrong date. The Riyáz says that a mosque, a tower, and a reservoir, in Gaur were built by him.

The coin published by Marsden as belonging to this king, has been shewn by Mr. Thomas to belong to Fírúz Sháh Bahmaní.

The following passage from João de Barros refers to either this king or Husain Sháh:—

'One hundred years before the Portuguese visited Chátgáon, a noble Arab arrived there from 'Adan (Aden), bringing with him 200 men. Seeing the state of the kingdom, he began to form ambitious projects of conquest. Dissimulating his intentions, he set himself up as a commercial agent, and on this pretext added to his followers a reinforcement of 300 Arabs, thus raising his total force to 500 men. Having succeeded through the influence of the *Mandarijs*, who were the governors of the place, in procuring an introduction to the king of Bengal, he assisted that monarch in subduing the king of Orísá, his hereditary foe. For this service he was promoted to the command of the King's body-guard. Soon afterwards he killed the king, and himself ascended the throne. The capital was at this time at Gaur.'

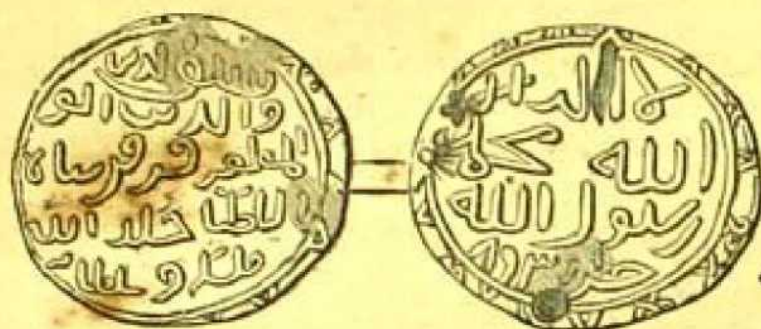
The chronology of Fírúz Sháh II.'s reign may be fixed with the help of the following; apparently unique, coin, the original of which is in the British Museum. Col. Guthrie kindly sent the Society a cast, from which the woodcut below has been made. The coin gives the year 893 (A. D., 1488). This year entirely agrees with the ascertained dates of Jaláluddín Fath Sháh's reign, and with the earliest ascertained year of Muzaffar Sháh. Fírúz Sháh II., therefore, reigned from 893 to 895, or 896. The former, 895, is perhaps preferable to 896, because both Mahmúd Sháh and Muzaffar Sháh reigned in 896.

I. Fírúz Sháh II. Silver. No mint town. A. H., 893. (A. D. 1488.) No margins.



OBVERSE.—سيف الدنيا والدين ابر المظفر فيروز شاه السلطان خلد الله ملكه  
وسلطانه

REVERSE.—لا اله الا الله محمد رسول الله خزانه ٨٩٣



Saifuddunyá waddín Abul Muzaffar Fírúz Sháh, the king,—may God perpetuate his kingdom and rule! There is no God but Allah, Muhammad is the Prophet of God. Treasury issue of 893.

### XIX. Na'siruddi'n Abul Muja'hid Mahmu'd Shá'h (II).

He was raised to the throne on Fírúz Sháh's death, though the government was in the hands of one Habshí Khán. After a short time, Habshí Khán, and immediately after, Mahmúd Sháh, were killed by Sidi Badr Díwánah, who proclaimed himself king.

Though the histories call Mahmúd the son of Fírúz Sháh, there is little doubt that the statement of Háji Muhammad Qandahári, preserved by Firishtah, is correct—"In the history by Háji Muhammad Qandahári,\* it is written that Sultán Mahmúd was the son of Fath Sháh, and that Habshí Khán was a eunuch of Bárbak Sháh, who by Fírúz Sháh's orders had brought up Mahmúd. After Fírúz Sháh's death, Mahmúd was placed on the throne; but when six months had passed, Habshí Khán shewed inclination to make himself king, and Sidi Badr killed him." These facts agree well with the following circumstances: *First*, all histories say that Fath Sháh, at his death, left a son two years old, and his mother, at Sultán Sháhzádah's death, declared herself willing to leave the throne to him, who had brought her husband's murderer to account. *Secondly*, according to Muhammadan custom, children often receive the names of the grandfather; hence Fath Sháh would call his son Náçiruddin Mahmúd; but as the *kunya* must be different, we have here 'Abul Mujáhid,' while the grandfather has 'Abul Muzaffar.'

General Cunningham found the following inscription of this king in Gaur; unfortunately, the date is illegible.

\* The Lak'hnan edition of Firishtah calls him 'Háji Mahmúd.' His historical work is not known at the present day.



No. 22. *The Mahmūd Sháh (II) Inscription of Gaur.* (A. H. 896 ?)  
(Pl. VII, No. 3.)

قال النّبِيّ صَلَّى الله عليه و سلم من بني مسجد الله بني الله له قصر  
في الجدة \* بني المسجد في عهد سلطان الزمان بالعدل و الاحسان غوث  
الاسلام والمسلمين ناصر الدنيا والدين ابوالمجاهد محمود شاه السلطان  
خلفه الله ملكه و سلطانه بني المسجد الخان الاعظم الاعظم الخ مجلس  
خان \*\*\* في التاريخ الثالث والعشرين من شهر ربيع الا [ دل سنة ست  
وتسعين و ثمانماية ؟ ]

The Prophet (may God bless him !) says, 'He who builds, &c., [as before]. This mosque was built in the reign of the king of the time, (who is endowed) with justice and liberality, the help of Islám and the Muslims, Nâçiruddunyâ waddîn Abul Mujâhid Mahmúd Sháh, the king—may God perpetuate his kingdom and rule!—by the great and exalted Khán Ulugh Majlis Khán.....(illegible). Dated, 23rd Rabi'.....

Marsden has published a silver coin of this king, which has likewise no date (*vide* Numism., Pl. XXXVI, No. DCCXXIV); but, as Laidley correctly observes, he ascribes it wrongly to Mahmúd Sháh of Dhlí. The legend of the coin is—

REVERSE.—( ) المؤيد بقائيد الرحمن خليفة الله بالعدل و الاحسان

OBVERSE.— السلطان العادل ناصر الدنيا و الدين ابو المجاهد محمود شاه  
السلطان

The words *bi'l adl wal-ihsán* are not clear, they may also be بالعصر و الزمان as elsewhere suggested by me; but the former coincides with the phrase used in the inscription. I cannot see the word فتحاباد, which Laidley gives.

According to the chronological remarks made by me regarding the reign of Firúz Sháh, we have to place Mahmúd Sháh's reign in 896, A. H.

## XX. Shamsuddi'n Abul-Nasr Muzaffar Sha'h.

(Sidi Badr Diwánah.)

The reign of this king, who is represented to have been a blood-thirsty monster, is said in all histories to have lasted three years and five months; but his death at the hands of the next king cannot have taken place in 903, because his coins and inscriptions mention the years 896 and 898. He must, therefore, have been killed in 899, the first year in which Husain Sháh struck coins.

A Muzaffar Sháh inscription was published by me in the Journal for 1872, p. 107, from an imperfect rubbing. Since then Mr. W. M. Bourke



has sent me a clear rubbing with the date distinct. I, therefore, republish it with a corrected translation.

No. 23. *The Muzaffar Sháh Inscription of Gangarámpúr.*

A. H. 896. (A. D. 1491.)

بني هذه العمارة المسجد في عهد المخدم المشهور قطب اوليا مخدم  
مولانا عطا طيب الله ثراه و جعل الجنة مثواه في عهد شمس الدنيا  
و الدين ابو النصر مظفر شاه سلطان خلد الله ملكه و سلطانه في التاريخ  
ست و تسعين و ثمانماية ||

This mosque was built in the time (?) of the renowned saint, Mauláná 'Atá—may God render his grave pleasant and may He make Paradise his dwelling place!—during the reign of Shamsuddunyá waddín Abul-Naṣr Muzaffar Sháh, the king—may God perpetuate his kingdom and his rule! Dated, A. H. 896.

Mr. Bourke's rubbing shews that the word *samánmiáh* is cut into the second bar, which separates the third line from the second. Below the last line there is another line cut into the lowest bar; but the letters are too small and partly broken to admit of a satisfactory reading. I can recognize the words 'Mullá Mubárah' and *mimár*, 'builder.'

Laidley has published a silver coin of this king, the legend of which is (*vide* J. A. S. B., Vol. XV, for 1846, Pl. V, No. 19)—

OBVERSE.—شمس الدنيا و الدين ابو النصر مظفر شاه السلطان خلد الله ملكه  
و سلطانه

*Margin.*—Cut away.

REVERSE.—The Kalimah. Year, illegible.

*Margin.*—the four Khalifahs.

The Honorable E. C. Bayley is about to publish a gold Muzaffar Sháhí, which seems to be of 896, A. H.

Muzaffar Sháh, according to the Riyáz, built a mosque in Gaur. General Cunningham has sent the Society a rubbing of another inscription from the Chhotá Dargáh (Núr Quṭb 'Álam's Dargáh) in Hazrat Panḍuah. It is, in point of execution, a very fine inscription.

No. 24. *The Muzaffar Sháh Inscription of Panḍuah.* A. H. 898.

*Vide* Pl. VI, No. 2.

قال الله تعالى ان اول بيت وضع للناس للذي ببكة مباركا و هدي  
للعالمين فيه آيات بيّانات مقام ابراهيم و من دخله كان آمنا و لله اعلى  
الناس حج البيت من استطاع اليه سبيلا و من كفر فان الله غني



عن العالمين • بني في البيت الصّوفة الرّوضة قطب الاقطاب قديلا  
 محبّبت وهاب شيخ المشايخ حضرت نور الحق والشرع سيّد قطب عالم  
 قدّس الله سرّه العزيز و نور الله قبره • بني هذا البيت في عهد السّاطان  
 العادل البادل الفاضل غوث الاسلام والمسلمين شمس الدنيا والدين  
 ابو النصر مظفر شاه سلطان خلد الله ملكه و سلطانه و اعلى امره و شأنه  
 بني هذا البيت في خلافة شيخ الاسلام والمسلمين شيخ المشايخ ابن شيخ  
 المشايخ شيخ محمد غوث سلمه الله تعالى دائما مؤرخا في السّابع والعشر  
 من شهر رمضان مبارك في سنة ثمان تسعين ثمانمائة ١١

God Almighty says, ' Verily, the first house that was founded for men, is the one in Bakkah [Makkah],\* blessed, and a guidance to all beings. In it are clear signs: the place of Abraham, and who entered into it, was safe, and God enjoined men to visit it, if they are able to go there; but whosoever disbelieves, verily God is independent of all beings. [Qor. III, 90 to 92.]

In this Sūfī building the tomb of the pole (*quṭb*) of poles was built, who was slain by the love of the All-Giver, the Shaikh of Shaikhs, Hazrat N ū r u l H a q washshara', Sayyid Quṭb 'Ālam—may God sanctify his beloved secret, and may God illuminate his grave! This house was built in the reign of the just, liberal, learned king, the help of Islām and the Muslims, Shamsuddunyā waddīn Abul- Naṣr Muzaḥḥar Shāh, the king, may God perpetuate his kingdom and rule, and may He elevate his condition and dignity! This house was built during the *khilāfat*\* of the Shaikh ul-Islām, the Shaikh of Shaikhs, son of the Shaikh of Shaikhs, Shaikh Muhammad Ghaus—may God Almighty ever protect him!

Dated, 17th Ramazān, 898. [2nd July, 1493.]

Nūr Quṭb 'Ālam was mentioned above among the Saints of Panḍuah.

#### THE HUSAINÍ DYNASTY.

On Muzaḥḥar Shāh's death in 899, 'Alāuddīn Husain Shāh, son of Sayyid Ashraf, usurped the throne. Of the reign of no king of Bengal—perhaps of all Upper India before the middle of the 10th century—do we possess so many inscriptions. Whilst the names of other Bengal kings scarcely ever occur in legends and remain even unrecognized in the geographical names of the country, the name of "Husain Shāh, the good," is still remembered from the frontiers of Orísá to the Brahmaputra.

I have treated of the chronology of the reigns of Husain Shāh and his successors in my article, "On a new king of Bengal, &c.," published in the Journal, for 1872, Pt. I, pp. 331 to 340, and according to that paper, we have—

\* The reign, if I may say so, of a spiritual teacher.



1. 'Aláuddín Abul Muzaffar Husain Sháh, 899 to 927 (929?).
2. Náçiruddín Abul Muzaffar Nuçrat Sháh, 927 (929?) to 939.
3. 'Aláuddín Abul Muzaffar Firúz Sháh (III.), 939.
4. Ghiyasuddín Abul Muzaffar Mahmúd Sháh (III.), 940 to 944, (defeated by Sher Sháh).

I have now only to describe a few unpublished coins and to give several new inscriptions belonging to the reigns of these kings.

### XXI. 'Ala'uddi'n Abul Muzaffar Husain Sha'h.

Marsden (Pl. XXXVIII, Nos. DCCLXXIX and DCCXCIII) has given two different Husain Sháhis, the former of Fathábád, 899, A. H., and the latter of Husainábád, 914, A. H.\* Laidley has two new types, one struck at Husainábád, 912, A. H., and the other (*vide* his plate, No. 21) resembling that of Marsden, but with a different legend. The cabinet of the Asiatic Society contains a few new varieties, with and without dates.

1. *Vide* Pl. IX, No. 9. Silver. Weight, 163·57 grains. No mint-town. A. H. 900. (As. Soc. Bengal, one specimen). Circular areas; no margin.

OBVERSE. — السلطان العادل علا الدنيا و الدين ابو المظفر

REVERSE. — حسين شاه سلطان بن سيد اشرف الحسيني خاد ملكه و سلطانه ٩٠٠

Col. Guthrie in a MS. list of Bengal Coins in the British Museum quotes Husain Sháhis struck at Jannatábád (Husainábád?) in 918 and 919.

The inscriptions belonging to Husain Shah's reign are most numerous; the date of the latest two is 925, A. H. Those of which the Society has received rubbings from General Cunningham are marked [G. C.].

1. *Munger*, 903; mentions Prince Dányál. Published *Journal*, 1872, p. 335. [G. C.].
2. *Machain*, *Parganah Ballipúr, Dháká*, 22nd Jumáda I, 907, or 3rd December, 1501. Received from Dr. J. Wise.

3. *Bonhara*, in Bihár, 908. Published, *Proceedings* 1870, p. 112.

4. *Cheran*, in Bihár, 909. Published, *Proceedings* 1870, p. 297.†

\* Marsden reads the latter date 917. On the former coin, the king's first name is spelt علا و الدين, instead of علاء الدين, with an intermediate wáw. This wáw should not be read: it arises from a whimsical rule of a class of pedantic Kátibs who maintain that the vowel u after a long á, as in 'Aláu, requires "a support."

The obverse of the latter coin, to which I alluded in the note to p. 301 of the *Journal* for 1870, Pt. I, is still a puzzle to me, though I have wasted much time in looking at the coin, patiently waiting for a happy guess. I now believe that the second line is القائم بسلطنته alqáim bisalṭanatihī, the last word being written disconnected, as sulṭánahu on the reverse. But the third line is unclear. The weight of the coin is 162·64 grains.

† For a Gaur Inscription of 909, *vide* Glazier, *Report on Bangalore*, 1873, p. 108.



5. *Silhat*, 911. From Dr. Wise.
6. *Máldah*, 911. [G. C.]
7. *Sunnárgáon*, 911. Given above, No. 17.
8. *Hazrat Panđuah*, 915. [G. C.]. The rubbing is unclear.
- 9 to 11. *Gaur*, two of 916, and one of 918. [G. C.]
12. *Sunnárgáon*, 2nd Rabí' IL, 919, or 7th June, 1513. [G. C.]  
Published, Journal, 1872, p. 333.
13. *Bírbhúm*, 922. Published, Journal, 1861, p. 390.
14. *Dhámraí*, 922. Published, Journal, 1872, p. 110.
15. *Sunnárgáon*, 15th Sha'bán, 925, or 12th August, 1519. [G. C.]
16. *Gaur*, 925, or A. D. 1519. Published with plate, J. A. S. B., 1871, Pt. I, p. 256.

No. 25. ✓ *The Husain Sháh Inscription of Machain.* (A. H. 907.)

قال النبي صلي الله عليه و سلم من بني مسجد الله بني الله له  
بيدا مذه في الجدة \* بني هذا المسجد الجامع السلطان المعظم المكرم علاء  
الدنيا والدين ابو المظفر حسين شاه السلطان بن سيد اشرف الحسيني  
خلد الله ملكه و سلطانه في الثاني والعشرين من جمادي الاول سنة  
سبع و تسعمائة ||

The Prophet says, &c., &c. (as before). This Jami' mosque was built by the great and liberal king 'Alāuddunya waddīn Abul Muzaffar Husain Sháh, the king, son of Sayyid Ashraf ul-Husaini—may God perpetuate his kingdom and rule!

Dated, 22nd Jumáda I, 907. (3rd December, 1501).

No. 26. ✓ *The Husain Sháh Inscription of Silhat.* A. H. 911.

بسم الله الرحمن الرحيم \* الأمر لهذه العمارة البقعة المباركة المنصوبة بدار  
الاحسان حرم الله تعالى من مخافة الزمان العابد العالي الكبير \* \* \* شيخ  
جلال مجرّد كنيائي قدس الله تعالى سره العزيز في عهد السلطان علاء  
الدنيا والدين ابو المظفر حسين شاه السلطان خلد ملكه و سلطانه بنا كرد  
خاناظم و خافانمظم خالصخان جامدار غير محلي و سرا-كرد وزير اقليم  
معظم آباد سنة احدى عشر و تسعمائة ||

In the name of God, the merciful and the element! He who ordered the erection of this blessed building, attached to the house of benefit (Silhat)—may God protect it against the ravages of time!—is the devotee, the high, the great, \* \* \* Shaikh Jalál, the hermit, of Kanyá—may God Almighty sanctify his dear secret! It was built during the reign of Sultan 'Alāuddunya waddīn Abul Muzaffar Husain Sháh, the king, by the great Khán, the exalted Khāqán, Khāliq Khán,



keeper of the wardrobe outside the palace, commander and wazir of the District Mu'azzamábád. In the year 911 (A. D. 1505.).

In this inscription Shaikh Jalál, whose biography was \*given under Yúsuf Sháh, is called Kanyái, i. e. of Kanyá, which appears to be a place in Arabia.

He is said to have 'ordered' the erection of the building. This can only refer to an order given in a dream, as in the case of 'Alí Sháh and Jalál Tabrízi.

No. 27. *The Husain Sháh Inscription of Máldah.* A. H. 911.

قال الدّبيّ صلّى الله عليه و سلّم من بنى مسجدا لله بنى الله له بيتا مثله في الجنّة \* بنى هذا المسجد الجامع السّطان المعظم المكرم علاء الدّنيا والدّين ابو المظفر حسين شاه السّطان بن سيّد اشرف الحسينيّ خلد الله ملكه و سلطانه في سنة احدى عشر و تسعمائة ||

The Prophet says, &c., &c. This Jami' mosque was built by the great and liberal king 'Aláuddunyá waddín Abul Muza'far Husain Sháh, the king, son of Sayyid Ashraf ul-Husaini—may God perpetuate his kingdom and rule! In the year 911. (A. D. 1505).

No. 28. *A Husain Sháh Inscription from Gaur.* A. H. 916.

قد بنى هذا الباب الرّوضة مخدوم شيخ اخي سراج الدّين السّطان المعظم المكرم علاء الدّنيا و الدّين ابو المظفر حسين شاه السّطان بن سيّد اشرف الحسينيّ خلد الله ملكه و سلطانه في سنة ستّ عشر و تسعمائة ||

The door of the tomb of the venerated Shaikh Akhí Sirájuddín was built by the great and liberal king, 'Aláuddunyá waddín Abul Muza'far Husain Sháh, the king, son of Sayyid Ashraf ul-Husaini—may God perpetuate his kingdom and rule! In the year 916. (A. D. 1510.)

Shaikh Akhí was mentioned above among the saints of Gaur.

No. 29. *Another Husain Sháh Inscription from Gaur.* A. H. 916.

بنى هذا الباب الرّوضة في عهد السّطان المعظم المكرم علاء الدّنيا والدّين ابو المظفر حسين شاه السّطان بن سيّد اشرف الحسينيّ خلد الله ملكه و سلطانه و اعلى امره و شأنه و اعزّ خياره و برهانه في سنة ستّ عشر و تسعمائة ..



The door of this tomb was built during the reign of the exalted and liberal king, 'Aláuddunyá waddín Abul Muzaffar Husain Sháh, son of Sayyid Ashraf ul-Husainí,—may God perpetuate his kingdom and rule, and elevate his condition and dignity, and may He render his benefits and evidence honorable! In the year 916. (A. D. 1510.)

No. 30 ✓ *A third Husain Sháh Inscription from Gaur. A. H. 918.*

بني هذا الباب الحصن في عهد السلطان المعظم المكرم علاؤ الدنيا  
والدين ابو المظفر حسين شاه السلطان بن سيد اشرف الحسيني خلد الله  
ملكه و سلطانه في سنة ثمان وعشرو تسعمائة ||

This gate of the Fort was built during the reign of the exalted and liberal king 'Aláuddunyá waddín Abul Muzaffar Husain Sháh, the king, son of Sayyid Ashraf ul-Husainí—may God perpetuate his kingdom and his rule! In the year 918. (A. D. 1512.)

No. 31 ✓ *The Husain Sháh Inscription of Sunnárgaon. A. H. 925.*

قال الله تعالى و ان المساجد لله فلا تدعوا مع الله احدا والله اعلم  
بالصواب قال النبي صلى الله عليه و سلم من بنى المسجد في الدنيا  
بني الله له سبعين قصرا في الجنة \* بني هذا المسجد في عهد  
سلطان السلاطين سلطان حسين شاه ابن سيد اشرف الحسيني خلد ملكه  
و سلطانه \* بني هذا المسجد ملا هزبر اكبر خان بتاريخ پانزدهم ماه شعبان  
سنة خمس و عشرين و تسعمائة ||

God Almighty says, Surely the mosques, &c., (as before). And the Prophet says, &c., &c., (as before).

This mosque was built in the reign of the king of the kings, Sultán Husain Sháh, son of Sayyid Ashraf ul-Husainí—may God perpetuate his kingdom and rule! This mosque was built by Mullá Hizabr Akbar Khán, on the 15th Sha'bán, 925. (12th August, 1519.)

## XXII. Na'siruddín Abul Muzaffar Nusrat Sha'h.

Of the inscriptions belonging to the reign of this king, I have published three, viz.—

1. *Sunnárgaon*, 929, or 1523. [G. C.] Published, Journal, 1872, p. 338.



2. *Sátgáon*, Ramazán, 936, or May, 1529. Published, Journal, 1870, p. 298.

3. *Gaur*, Qadam Rasúl, 937, or 1530-31. [G. C.] Published, Journal, 1872, p. 338. *Vide* Glazier, Rangpore Report, p. 108.

A few weeks ago I received a black basalt slab from the old mosque in Mangalkot, Bardwán District, with the following inscription—

No. 32. *The Nuçrat Sháh Inscription from Mangalkot.* A. H. 930.

قال النبي صلى الله عليه وسلم من بني مسجدا لله بني الله له بيتا  
مثله في الجنة بني هذا المسجد الجامع في عهد السلطان المعظم السلطان  
بن السلطان ناصر الدنيا والدين ابو المظفر نصرتشاه السلطان بن حسين  
شاه السلطان خلد الله ملكه و سلطانه و بانيه خان ميانمعظم بن مراد  
حيدر خان دام عزه في سنة ثلثين و تسعمائة ١١

The Prophet says, He who builds, &c., (as before). This Jami' Mosque was built in the reign of the exalted king, who is the son of a king, Nāçiruddunyá waddín Abul Muzañfar Nuçrat Sháh, the king, son of Husain Sháh, the king—may God perpetuate his kingdom and rule! Its builder is Khán Miýán Mua'zzam, son of Murád Haidar Khán—may his honor continue! In the year 930, A. H. (A. D. 1524.)

The following important inscription I owe to the kindness of J. R. Reid, Esq., C. S., A'zamgarh, N. W. Provinces, who sent me a rubbing. The slab was found on the right bank of the G'hágrá, near Sikandarpúr.

✓ No. 33. *The Nuçrat Sháh Inscription of Sikandarpúr, A'zamgarh.*  
A. H. 933.

لا اله الا الله محمد رسول الله قال النبي صلى الله عليه وسلم من بني  
مسجدا في الدنيا بني الله تعالي له سبعين قصرا في الجنة المتأسس  
لهذا المسجد في عهد الملك العادل ناصر الدنيا والدين ابو المظفر نصرتشاه  
بن حسين شاه السلطان جعل الله في زمرة عباده آل المجيد و هو  
خاناعظم محمدمدار خان سر لشكر دره خريد في شهر الرجب ٢٧ سنة ثلث  
و ثلثين و تسعمائة ١١

There is no God, &c. He who builds a mosque, &c. The founder of the mosque, during the reign of the just king Nāçiruddunyá waddín Abul Muzañfar Nuçrat Sháh, son of Husain Sháh, the king—may God place him among the number of his servants!—is the great Ulur [Ulugh], i. e. the great Khán.....Khán, commander of the district of Kharíd. On the 27th Rajab 933. (29th April, 1527.)





The inscription confirms the histories, according to which Nuçrat Sháh extended his authority over the whole of Northern Bihár; and as Kharid lies on the right bank of the G'hágrá, Nuçrat Sháh must have temporarily held sway in the A'zamgarh District.

The coinage of this king contains numerous varieties, among which there are several struck by him during the lifetime of his father. The latter coins are mostly of a rude type, and look debased; besides, they are restricted to the Sundarban mint town of Khalifatábád (Bágherbát) and to Fathábád. They either indicate an extraordinary delegation of power or point to a successful rebellion.

1. *Vide* Pl. IX., No. 10. Silver. Weight, 154·06 grains. *Khalifatábád*, 922, A. H. (As. Soc. of Bengal). Circular areas; no margin.

OBVERSE.—السلطان بن السلطان ناصر الدنيا و الدين ابو المظفر

REVERSE.—نصره شاه السلطان بن حسين شاه السلطان الحسيني خلد ملكه  
خليفة آباد ٩٢٢

3. *Vide* Pl. IX., No. 11. New variety. Silver. Weight, 163·14 grains. *Mint town?* A. H., 927. (Cabinet, As. Soc. of Bengal.) Circular areas; no margin.

OBVERSE.—السلطان بن السلطان ناصر الدنيا و الدين ابو المظفر

REVERSE.—نصرتشاه السلطان بن حسين شاه السلطان خلد الله ملكه  
وسلطانه ٩٢٧

3. *Vide* Pl. IX., No. 12. New variety. Silver. Weight, 162·952 grains. No mint town, or year. Circular areas, and scollops in the margin. The characters are neat. (As. Soc. Bengal.)

OBVERSE.—As in the preceding.

REVERSE.—[يد هرمزد ؟] نصرتشاه السلطان ابن حسين شاه السلطان خلد ملكه

I am doubtful as to the correctness of the last words *yad i Hurmuzd*, 'by the hand (engraved by) Hurmuzd.' The characters, though smaller, are clear, and yet it is difficult to suggest anything else.

The years of the three Nuçrat Sháhs published by Marsden and Laidley are not clear; they may be 924 (Marsden) and 927, or 934 and 927. The Cabinet of the As. Soc. of Bengal, besides the above, contains six different types, among which there is a silver coin struck at *Nuçratábád*, 924 A. H., but it is not clear to what locality this new name was applied.

Nuçrat Shah's name as prince seems to have been Naçíb Khán; at last this would explain why the histories call him Naçíb Sháh.

He was succeeded by his son

### XXIII. 'Ala'uddín Abul Muzaffar Fíru'z Sha'h (III).

The Kalnah inscription (A. H. 939) of this king, which I published in the Journal, for 1872, Pt. I, p. 332, is of some importance, and I now give a plate of it (*vide* Pl. VII, No. 2). The name of this king is only



mentioned in the Riyáz, and though we do not know his source, his statements have, in several instances, been proved to be correct. In the MS. of his work in the As. Soc. of Bengal—the only copy I know of at present—this king is said to have reigned three *years*, which is impossible;\* but Stewart found three *months* in the copy which he consulted.

The Society's cabinet possesses a specimen of this king's coinage, struck in 939, A. H., the same year as mentioned in the Kalnah inscription.

1. *Vide* Pl. IX., No. 13. Silver. Weight, 163·215 grains. *Husain-ábád*, 939, A. H. Circular areas. The margins are divided into four quadrants, at the beginning of each of which there is the letter *nún*, and in each quadrant there is an arabesque, which looks like the word نصر. The same design is given on Marsden's Nuçrat Sháh.

OBVERSE.—السلطان بن السلطان علاؤ الدنیا والدين ابو المظفر فيروز شاه

REVERSE.—بن نصرتشاه السلطان بن حسين شاه السلطان خلد الله ملكه و سلطانه  
حسینآباد ۹۳۹

Firúz Sháh III. was murdered by his uncle .

#### XXIV. Ghiya's-uddi'n Abul Muzaffar Mahmu'd Sha'h (III).

General Cunningham's Gaur Inscription of this king, dated 941, was published by me in the Journal, for 1872, Pt. I., p. 339.

Our Society possesses a coin of Mahmúd Sháh of the same type as the one published by Laidley. He refers the coin to 933; but the Society's specimen has clearly 943 A. H. The concentric circles contain the words *badr i sháhi*, or 'royal moon.'

General Cunningham lately sent me the tracing of a Mahmúd Sháhí round *copper* coin, which has the same inscription on both sides, viz. العبد غياث الدين محمود شاه البدرشاهي. But though the phrase *badr i sháhi* seems to shew that the coin belongs to Mahmúd Sháh (III.) of Bengal, it would be desirable to have specimens with dates or mint towns.

Mahmúd Sháh is mentioned in De Barros' work, from which the following facts are taken. Nuno da Cunha, the Portuguese governor of Goa [گوز], sent in 1534 Alfonso de Mello with two hundred men in five ships to Chátgáon, which then again belonged to Bengal, in order to effect a settlement. De Mello, on his arrival, thought it wise to send a few of his men with presents to Gaur, where Mahmúd Sháh, who tyrannically held the crown, kept his court, in great apprehension of being deposed, but with such state that only his women amounted to the number of 10,000; but though De Mello's men found in Alfá Khán† a friend, the king imprisoned them,

\* The passage, however, is corrupt. *Vide* Journal for 1872, Pt. I, p. 339.

† This is, no doubt, the Alfá Husainí of Baghdád, mentioned by me in J. A. S. B., 1872, Pt. I, p. 337.



and gave orders to seize De Mello in Chátgáon. The latter was shortly after treacherously captured with thirty of his men and was sent to Gaur,\* where they were kept strictly confined, because Antony de Sylva Meneses had soon after taken reprisals and sacked Chátgáon. Now at that time Sher Khán and his brother 'Adil Khán had deserted from the Mughul to the king of Bengal. But Sher Khán wished to revenge the death of the youth whom Mahmúd had slain,—De Barros means Fírúz Sháh III.—to procure the throne. Sher Khán, therefore, made war on Mahmúd, and the king asked his Portuguese prisoners to assist him in the defence of Gaur. At the same time Rabelo arrived with three ships sent by the Goa Governor, to demand the release of the captives, and Mahmúd after securing their co-operation sent them to Gorij [Garhi] near K'halgáon, where they valiantly, though in vain, opposed Sher Sháh. Mahmúd, pleased with their prowess, applied to Nuno da Cunha for further assistance; but when Perez de Sampayo came with nine vessels, he found Gaur in the hands of Sher Khán and heard that Mahmúd had been killed.

### III.

I now conclude this essay with my readings and translations of the Bihár collection of rubbings from the time of Muhammad Tughluq to the year 1455 A. D.

The first inscription is taken from the vault of one Sayyid Ahmad Pir-Pahár, regarding whom nothing is at present known in Bihár; but it seems to refer to the building of a portico by a near relation of Muhammad Tughluq.

No. 34. *The Muhammad Tughluq Inscription of Bihár.* A. H. 737.

حمد گویم خدا برا صد بار	مدح وافر باحمد مختار
شد بنا گنبد فلک آسا	.. .. .
گیدی آرا محمد صفدر	سایه ایزدی بهر کشور
بوالمجاهد خلیفه با جاه	.. .. .
بانی این عماره المقصود	هست بنده مبارک محمود
دوده خسروی نبیره شاه	.. .. .
بوده این دولت از سرافرازی	یادگار سبکتگین غازی
چون مرتب شد این ...	هفصد و سی و هفت بد گفتم

\* The Portuguese describe Gaur as three leagues in length, well fortified, and with wide and straight streets, along which rows of trees were planted to shade the people, "which sometimes is in such numbers that some are trod to death."



1. I praise God a hundred times, and abundantly glorify Ahmad, the elect.
2. This heaven-touching portico was erected.....
3. The world-adorning Muhammad, who breaks through the ranks, the shadow of God in every realm,
4. Abul Mujáhid, the Khalífah of high dignity,.....
5. The builder of this desirable edifice is the slave Mubárah Mahmúd,
6. Of royal descent, the grandson of Sháh... ..
7. This dynasty, on account of its elevation, has obscured the memory of Subuktigín i Ghází.

When this...was erected, I said, it was 737, A. H. (A. D., 1336-37.)

If the name in the sixth line were not broken away, we might fix the name of the builder with the help of p. 454 of Baraní's history.

Nos. 35 to 37. *The Malik Ibráhim Bayyú Inscriptions of Bihár.*

The next three inscriptions belong to the Dargáh of Ibráhim Abú Bakr Malik Bayyú, who is *par excellence* the saint of Bihár. The shrine lies on the hill to the north-west of the town.

Malik Bayyú was first mentioned by Buchanan, who supposed him to be a purely mythological personage. Mr. T. W. Beale next published in his valuable *Miftáh uttawárikh* (p. 90) the first of the following inscriptions. Col. E. T. Dalton also mentions him in his 'Ethnology of Bengal' (p. 211), and says that Jangrá, a Santál Rájah, destroyed himself and his family in the Fort of Chai Champá, Hazáribágh District, when he heard of Malik Bayyú's approach.

The 'Mujáwirs' or custodians, of the shrine claim to be descended from the Malik. According to traditions still preserved among them, Ibráhim Malik Bayyú was an inhabitant of Butnagar, and was sent by Muhammad Tughluq to chastise Háns Kumár, Rájah of Rohtásgarh. The Rájah frequently came to Bargáon, the great Buddhist monastery, to worship. He oppressed the poor Muhammadans of the country. Now it happened that an old woman, a Sayyidah, killed a cow, in order to celebrate the nuptials of her grandson, when a kite snatched up one of the bones, and let it fall near the place where the Rájah worshipped. The Rájah was, of course, enraged, and put the Muhammadan bridegroom to death. At the advice of her friends, the old woman complained to Muhammad Tughluq. Being uncertain as to whom he should intrust with the command of an expedition against Háns Kumár, he consulted the astrologers. They told him, "This very night a storm will occur in the city, of such violence that all the lights will be extinguished. In whose house a lamp may be found burning, he is the man best fitted for the undertaking." Ibráhim Malik Bayyú was found reading the Qorán by lamp-light, and next morning he was appointed to command the expedition. He at once advanced to Bihár, and surprised Rájah Háns Kumár at the Súraj Pok'har, Bargáon. Although the Rájah



escaped to Rohtásgarh, the number of the slain was so great, that Malik Bayyú returned with fifty sers weight of sacred threads. He now occupied himself in subduing the warlike tribes of the province, and unfortunately fell at the moment of victory, his enemy Rájah Háns Kumár having been killed in the same battle. Malik Bayyú's body was brought to Bihár; and the Rájah's head and the sacred threads were buried at the foot of the hill, which still bears the name of Múñḍ-málá.

According to the inscriptions on Malik Bayyú's shrine, he died, apparently peacefully, on the 13th Zil Híjjah, 753, or 20th January, 1353, in the second year of Fírúz Sháh's reign and about a year before his invasion of Bengal.

## No. 35.

بمعد دولت شاه جهانگیر که بادا در بهار ملک نوروز  
شهنشاه جهان فیروز سلطان که بر شاهان گیتی گشت فیروز  
ملک سیرت ملک بیو براهیم که بد در دین چو ابراهیم کین تور  
بمادی الحجه یکشنبه از دهر بدست چون سیزده از درین سوز  
بجرت هفصد و پنجه تاریخ مسافر شد ملک در جنت این روز  
خداوند بفضل خویش بروی کنی آسان حساب آخرین روز

1. In the time of the reign of the world-taking Sháh (may the *mulk i naurúz* be in Bihár!),
2. The king of the world, Sultán Fírúz, who was victorious over the kings of the Universe,
3. The angelic Malik Bayyú Ibráhím, who in his faith was as zealous as Abraham,
4. In the month of Zil Híjjah, on a Sunday, of the time, when thirteen (days) of the month had been in grief,\*
5. In the year 753 A. H., travelled on that day to Paradise.
6. O Lord, in Thy kindness, make the account of the last day light for him!

## No. 36.

این مقطع بهار ملک سیف دولست کز سهم تیغ او سر افکنده آفتاب  
بت را همی شکست چو همنام خویش تا در عالم بقاش بود بت شکن خطاب  
مقدار صف شکن چو صف آراستی بحرب رستم بقاب فتاده و بهمن شده زتاب  
خرشید اگر چه لشکر سیاره را شکست آخر ز کوه ساخت سراپرد؟ حجاب  
تاریخ آفتاب که یکشنبه از جهان چون لعل رفت در دل سنگ از برای خواب  
بود از مه معظم ذی الحجه سیزده وز سال بعد هفصد و پنجه سه در حساب

1. This Jágírdár of Bihár is the Malik, the sword of the dynasty, from the point of whose sword the sun turns his head

\* The poetry is bad enough, but metrical slips also occur. The metre is short *kazaj*, and the *t* in *badast* has been elided.



2. Like his namesake (Abraham), he broke idols, so that in the future world the title of 'Iconoclast' might be given him.

3. (He is) the warrior who breaks the ranks (of the enemies); when he arranged his ranks, Rustam fell into feverish restlessness, and Bahman lost his firmness.

4. Although the sun defeats the army of the planets, he makes at last for himself a screen of the mountains.\*

5. On the day of the sun it was, on a Sunday, when, like a ruby in a stone, he (Malik Bayyú) went away from the world, in order to sleep,

6. When thirteen days had passed away from the exalted month of Zil Hijjah, and 753 years of the era.

## No. 37.

درین گنبد که هست از روی معنی بقدر از گنبد افلاک برتر  
 بخفتست شیر مردے کز نهیبش لخته شیر اندر بطن شیر  
 مدار ملک ابراهیم بوبکر که تیغ از بهر حق میزد چو حیدر  
 چنین لشکر کشی کشور کشائی نخیزد دوم اندر هفت کشور  
 کنون چون بردرت افتاد یارب ز راه لطف بکشی برو در  
 بمشک رحمت و کافور رافت کنی دیوار خاکش را معطر

1. In this dome, which in a spiritual sense has a higher value than the dome of heaven,

2. Sleeps a lion, from whose dread ..... (unintelligible),

3. The pivot of the realm, Ibrāhīm Abū Bakr, who wielded his sword for truth like Haidar ('Alf).

4. Such a warfare, such a conquest of realms, will not take place a second time in the seven realms.

5. O God, as he has now fallen down at Thy door, open in mercy Thy door to him!

6. Perfume the walls of his grave with the musk of Thy mercy and the camphor of Thy forgiveness!

No. 38. *The Firúz Sháh Inscription in the Chhoṭá Dargáh.* A. H. 761.

The Chhoṭá Dargáh of Bihár is the shrine of Badruddin Badr i 'Álam. This faqír came from Mirat'h, is said to have spent a long time at Chátgáon, and settled at last in Bihár, where he died in 844 A. H., or 1440 A. D., the *tárikh* of his death being بنور حق پیوست, 'he joined the glory of the Lord.' It is said that the famous Sharafuddín Munyari had invited him, but Badr delayed in Chátgáon, and only arrived in Bihár forty days after Sharafuddín's death.

The slab stands in the northern enclosure, and curious to say, has on the other side Inscription No. 6, given above. It thus contains the name

\* The light of the sun is so strong that the planets are not visible; but even the sun sets and loses himself behind the mountains. So also Malik Bayyú.



of the Bengal Fírúz Sháh on one side and that of the Dihlí Fírúz Sháh on the other. We often find slabs with Hindú carvings on one side and Muhammadan inscriptions on the other; but I have not heard of a Muhammadan inscription having been treated so; for it is repugnant to the feelings of a Muslim to have God's name walled up. The slab is now considered an infallible cure for evil spirits of all sorts.

مجدد گشت این صمیمون عمارت بعد پادشاه عدل پرور  
 شهنشاه جهان فیروز شاه آنک از آباد شد محراب و منبر  
 بسعی و التماس بندۀ خاص برید خطه اندر دور داور  
 ملک سیرت ملک کافی کفایت فهم نامور در هفت کشور  
 گذشته مقصد از تاریخ هجرت فزوده بود یک بر شصت دیگر  
 همیشه باد شه بر تخت دولت چونام خویش فیروز و مظفر

1. This auspicious building was renewed in the reign of the justice-fostering king,
2. The lord of the world, Fírúz Sháh, through whom niches and pulpits [i. e., mosques] flourished,
3. Through the exertion and at the request of the special slave, (who is) the Reporter (*baríd*) of the District, in the time of the just king,
4. An angelic man, a noble whose guarantee is sufficient, a wise man, renowned in the seven realms.
5. Seven Hundred years have passed away of the Era of the Hijrah, and sixty-one besides.
6. May the king on the throne of power remain for ever victorious and successful, as (indicated) by his name!

The following two inscriptions are of importance for the history of the Dihlí empire.

No. 39. *The Muhammad Sháh Inscription of Bihár.* A. H. 792.

This inscription belongs to the ruined mosque in Kabir-uddínganj, the most northern Mahallah of the town of Bihár. The mosque has three cupolas, the centre one circular, the others octagonal. Two of its lofty minarets have fallen down.

Regarding the king, *vide* Mr. Thomas, 'Chronicles,' p. 306. The metre (long *ramal*) precludes the possibility of an error in the date.

شد بعد دولت شاه محمد نامدار اینچنین مسجد مروج فضل باری کردگار  
 این بنادر کرد چون خواجه ضیا ابن علا بد ز هجرت هفتصد دیگر نود دو در شمار

1. In the time of the reign of Sháh Muhammad, the illustrious, this Masjid became generally used, (by) the grace of God, the Creator.
2. When Khwájah Ziyá, son of 'Alá, erected this edifice, it was 792 after the Hijrah. (A. D. 1390.)



No. 40. *The Mahmúd Sháh (of Dihlí) Inscription of Bihár.* A. H. 799.

This inscription belongs to the *Khánqáh*, or cell, of Ziyá ul Haq, governor of Bihár, who was mentioned in the preceding inscription. The slab was found in the cluster of religious buildings known in Bihár as the Chhotá Takyah, 'the small cloister,' in which there is the tomb of Sháh Diwán 'Abdul Wahháb, who is said to have died in 1096, A. H.

As the inscription mentions Mahmúd Sháh as the reigning king in 799, it follows that Nuqrát Sháh was not acknowledged as opposition king by Malik Sarwar of Jaunpúr, to whom Bihár then belonged. *Vide* 'Chronicles,' pp. 312 to 317.

کرد اندر عهد سلطان جهان محمود شاه حاکم خطه ضیاء الحق بنا این خانقاه  
هفتصد نه با نود از سال هجرت رفتند بود شد تمام این خانقه بار اضعیفان را پناه

1. During the reign of the king of the world, Mahmúd Sháh, Ziyá ul Haq, governor of the province, built this *Khánqáh*.

2. Seven hundred and ninety-nine years had passed since the Hijrah, when this asylum was completed. May it be the refuge of the weak! (A. D. 1397.)

Nos. 40 to 42. *The Mahmúd Sháh (of Jaunpúr) Inscriptions of Bihár.*  
(A. H., 847 and 859.)

From the preceding inscriptions we see that Bihár, in the 8th century of the Hijrah, belonged to the Dihlí empire. With the establishment, immediately afterwards, of the Jaunpúr kingdom, it was separated from Dihlí. Bihár with Qanauj, Audh, Karah, Dalamau, Sandelá, Bahráich, and Jaunpúr, had since 796 been in the hands of Malik Sarwar Khwájahsará, who had the title of 'Sultán ushsharq,' or 'king of the East.' He does not appear to have struck coins, and the fact that the preceding inscription does not mention his name, confirms the statement of the histories that he did not assume the ensigns of royalty. He was succeeded by his adopted son Malik Qaranful,\* whose elder brother Ibráhim ascended the throne of Jaunpúr in 804, under the title of Sultán Shamsuddín Abul Muzaffar Ibráhim Sháh. After a reign of forty years, he was succeeded by Náçiruddín Mahmúd Sháh (844 to 862), to whose reign the following three inscriptions belong.

The inscriptions do not mention Mahmúd's *kunya*; the coins (Thomas, *Chronicles*, p. 322) do not even give his first name. But as Náçiruddín Mahmúd Sháh of Jaunpúr is the contemporary of, and has the same name

\* This word is generally derived from the Greek *caryophyllum*, a clove; but the *Ghiyásullughát* derives it more correctly from the Hindí *kara*, 'ear,' and *phál*, flower, because women and eunuchs often put a clove into the lobe of the ear. An ear-ornament, resembling the head of a clove, has also the same name. It is possible that Malik Qaranful, like Malik Sarwar, was a eunuch.



as Nāṣiruddīn Mahmūd Shāh (I) of Bengal, care is to be taken not to confound the two.\*

The first of the following three inscriptions belonged to a mosque which stood opposite to the Chhotā Takyah, on the opposite bank of the Adyānadi, in Bihār. The mosque has disappeared; only a large square stone platform is left, where the slab was found.

The second and third inscriptions belonged to the ruinous Pahārpūr Jāmi' Masjid.

No. 40.

بسم الله الرحمن الرحيم • قال عليه السلام من بنى مسجدًا لله بنى الله له  
يدنا في الجنة ۱۱

شد بقویق الهی و ز طویل مصطفی مسجد جمعه بعهد شاه دین پور بن  
شاه محمود ابن ابوالهیم عادل شاه آنک کشور از شاهان ستاند باج بخشد برگدا  
بانی این مسجد آن مسند شریعت هست که ذات پاکش قره العین نبی و مرتضا  
پور و صدر جهان آن سید اجمل که شد ملک و ملت دین و دولت را دراو انجا  
کرده فرمایش بنام خیر ملک الشرق کآن مقطع داور دین خطه نصیر ابن بها  
این بنا شد استوار از طاق کسری در بهار کعبه در عظمت بر رفعت بیت معمور علا  
غره مادر جب بد هشتاد و چهل هفت سال کا درین مسجد اقامت شد بقائید خد

In the name of God, the merciful and the clement. He upon whom be peace (the Prophet) says—"He who builds a mosque for God, for him will God build a house in Paradise.

1. By divine grace and for the sake of Muṭṭafā [the Prophet], the Jum'ah mosque was built in the reign of the faith-nourishing king

2. Shāh Mahmūd, son of Ibrāhīm the Just, a king who takes realms from kings, (and) gives beggars tribute.

3. The builder of this mosque is the great lawyer, who is pure in nature, the beloved of the Prophet and of Murtazā ('Alī),

4. The chief and the centre of the world, the perfect Sayyid, with whom realm and faith, religion and the royal house, take refuge,

5. (Who) ordered this building (to be erected), he the best in the Eastern (Jaunpūr) kingdom, the Jāgirdār (muqṭi'), the lord of this district, Naṣir ibn i Bahā.

6. This building in Bihār is stronger than the portico of Kīrā; it is a Ka'bah in grandeur, and in loftiness the edifice of sublimity.†

7. It was on the 1st Rajab, of the year 847 A. H., [25th October, 1443, A. D.] when with the assistance of God the first prayer was read (iqdmat shud) in this mosque.

\* The Jaunpūr Mahmūd Shāhī coins generally have the word *sulṭānī*, and allude to the investiture by some Khalīfah.

† The phrase استوار از طاق کسری in line 6 is a Hindī construction for the Persian Comparative.



## No. 41.

بسم الله الرحمن الرحيم • قال عليه السلام من بني مسجد الله بنى الله له  
بيتا في الجنة •

بارك الله در زمان ناصر دنیا و دین شاه محمود بن ابراهیم شاه راستین  
صفدر گیهان پناه مملکت صدر کریم یافته توفیق خیر از فضل رب العالمین  
مسجد جامع بنا کرد آنچنان کاندرجهان طاق بنیاد آمدش با ملا و ماعی هم نشین  
مذہب و محرابش از فرط علو مرتبه یافت آن رونق کہ تحسین میکند روح الامین  
وین ندا از عالم بالا همی آید فرود هذه جنات عدن فادخلوها خالدين  
چارشنبه بیست هفتم مه ز ایام میام هشتاد و پنجاه و نه بود ست تاریخ از سنین ۸۵۹  
در بقاع خیر او احمد همی خواهد چنان روح پاک شیخ شرف الحق والدین رابعین

In the name of God, &c., (as above).

1. Blessed be God, in the time of Nāṣiruddunyā waddīn Shāh Mahmūd, son of the righteous Shāh Ibrāhīm [of Jaunpūr],
2. The hero of the world, the refuge of the kingdom, the noble chief, who through the mercy of the Lord of the Universe has found grace to do good,
3. Built this Jāmi' Masjid in such a way, that on earth the arch of its structure dwells together with the moon and the fish.\*
4. Its pulpit and niche, from the excess of the loftiness of (their) dignity, have received such a lustre that even the Rūh ul Amīn (the warden of Paradise) has approved (of them).
5. And from the upper world, the call comes continually down (to earth), 'This is the garden of Eden, enter it (and live in it) for ever.'
6. Wednesday, the 27th of the month of fasting (Ramazān) of the year 859 is the date of its erection (14th September, 1455, A. D.).
7. Ahmad (the Prophet) sincerely (ba-jān) desires to protect this religious building for the sake of the pure spirit of Shaikh Sharaf ul-haq waddīn.†

## No. 42.

بسم الله الرحمن الرحيم • قال عليه السلام من بني مسجد الله بنى الله له  
بيتا في الجنة ॥

مسجد جامع بتوفیق خداوند الاله و ز طفیل مصطفاء صاحب تمکین و جاه  
شد بعد دولت شاهي که صیت عدل او مغرب و مشرق گرفت از پشت ماهي تا ماه  
آنکه پور شاه ابراهیم عادل سروراز آفتاب سلطنت شاه جهان محمود شاه

\* I. e., the building is so high, that it touches the moon, and its foundation is so deep, that it touches the fish, upon which the earth is supposed to rest.

† The metre is as bad as the poetry. To get out the metre, we have to read *sharf* for *sharaf*—which is Hindústānī, and have to scan *haqqa waddīn*.





.. .. .  
 .. .؟ .. .. . نزهت بیت المقدس حرم بیت الحرام  
 بنده فضل الله نبشته بیست هفتم زمیام هشتصد و پنجاه و نه تاریخ بود و سال و ماه

In the name of God, &c.

1. The Jāmi' Masjid, by the grace of God the Lord, and for the sake of Muṭafā, the Lord of power and dignity,
2. Was( erected) during the reign of a king, the fame of whose justice surrounds the west and the east, (extending) from the back of the fish to the moon.
3. Namely, the son of Shāh Ibrāhīm the Just, the exalted, the sun of Royalty, the king of the world, Mahmūd Shāh (two distichs illegible).
6. The glory of the holy temple (in Jerusalem), the honor of the Haram (the temple in Makkah) .....
7. The slave Fazlullah wrote this on the 27th day of the Fast, A. H. 859 (10th September, 1455, A. D.)

I now bring this essay to a close. It has extended over more pages than I originally had intended. I hope in a short time to put together the collection of inscriptions belonging to the Pathān and Mughul periods, received by the Society from General Cunningham and Dr. J. Wise, to whose unwearied exertions Bengal History owes so much. In the meantime it would be well if other members also, and all such as take an interest in the subject, would send rubbings and coins to the Society; for in the absence of written histories it is only from mural and medallie remains that we can expect to gain a correct knowledge of the history of Bengal.



*Table of the Independent Muhammadan Kings of Bengal, from A. H. 739 to 944, or A. D. 1338 to 1538.*

		Statements of the Histories.		Ascertained Dates		Probable duration of reign.	REMARKS.
		Duration of reign.	Dates.	by Coins.	by Inscriptions.		
1	Fakhruddín Abul Muzaffar Mubárák Sháh,.....	2 years and some months.	739 to 741	739, 741 to 750.	none.	739 to 750 Eastern Bengal.	
2	Ikhtiyáruddín Abul Muzaffar Ghází Sháh, (son) .....	not mentioned.		753.	none.	751 to 753 Do.	
3	'Aláuddín Abul Muzaffar 'Alí Sháh,....	1 y. and 5 m.	none.	742, 744 to 746.	none.	740 to 746 Western Bengal.	
4	<i>A. The House of Ilyás Sháh.</i>						
	Shamsuddín Abul Muzaffar Ilyás Sháh, .....	16 y. and some m.	none.	Western Bengal, 740, 744, 746 to 758; Eastern Bengal, 753 to 758.	none.	740 to 759	
5	Abul Mujáhid Sikandar Sháh, (son) ...	9 y. and some m.	none.	<i>As prince</i> , 750 to 754; 759 to 761; 763 to 766; 770 to 773; 776; 779 to 783, 784 to 792.	Rajab, 770.	759 to 792	
6	Ghiyásuddín Abul Muzaffar A'zam Sháh, (son) .....	7 y. and some m., or 16 y. 5 m. 3 d.	to 775.	772; 775; 776; 790 to 799.	none.	792 to 799	
7	Saifuddín Abul Mujáhid Hamzah Sháh (son), .....	10 y., or 7 y., or 3 y. 7 m. 5 d.	to 785	804.	none.	800 to 804	
8	Shamsuddín, ....., (?), (son ?) ...	3 y. and some m., or 3 y. 4 m. 6 d.	to 788	none.	none.	804 to 808	



B. *The House of Rājāh Kāns.*

9 {	Rājāh Kāns, .....	7 years.	none.	none.	808 to 817
	Shihābuddīn Abul Muzaffar Bāyazīd Shāh, .....	not mentioned.	812, 816	none.	none.
10	Jalāluddīn Abul Muzaffar Muhammad Shāh, (son) .....	17 years.	813, 821, 831	none.	817 to 834
11	Shamsuddīn Abul Mujāhid Ahmad Shāh, (son) .....	16 or 18 years.	836	none.	834 to 850 [or to 846?]
C. <i>The House of Ilyās Shāh restored.</i>					
12	Nācīruddīn Abul Muzaffar Mahmūd Shāh (I), .....	32 or 27 years.	846	861; Sha'bān, 863; 28 Zil Hijjah 863.	846 to 864
13	Ruknuddīn Abul Mujāhid Bārbak Shāh, (son) .....	17 or 16 years.	873	860 (as prince); Safar, 865.	864 to 879
14	Shamsuddīn Abul Muzaffar Yūsuf Shāh, (son) .....	7 y. 6 m.	883, 884	882, 884, 885.	879 to 886
15	Sikandar Shāh (II), (son ?) .....	2½ days, or ½ day.	none.	none.	886
16	Jalāluddīn Abul Muzaffar Fath Shāh, (son of No. 12) .....	7 y. 5 m.	886	886, 887, 888, 889, beginning of 892.	886 to 892

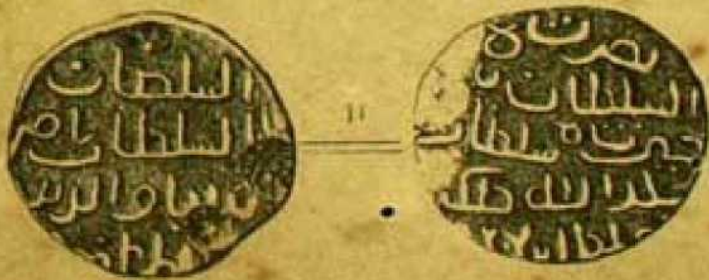
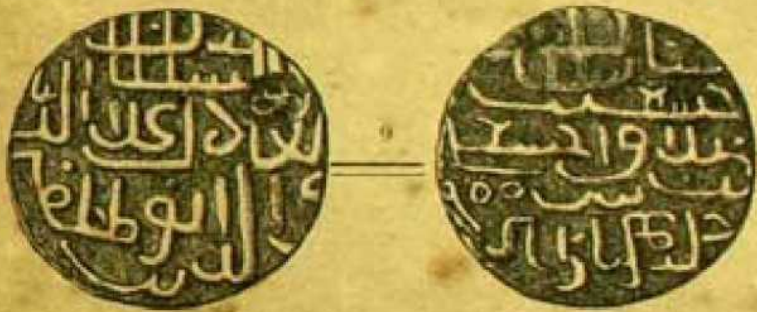


		Statements of the Histories.		Ascertained Dates		Probable duration of reign.	REMARKS.
		Duration of reign.	Dates.	by Coins.	by Inscriptions.		
	<i>D. The Habshî Kings.</i>						
17	Sultân Shâhzâdah Bârâk, the Eunuch,	8 or 6 or 2½ m.	none.	none.	none.	893	
18	Saifuddîn Abul Muzaffar Fîrûz Shâh (II), .....	3 years.	to 899	893	none.	893 to 895	
19	Nâsiruddîn Abul Mujaâhid Mahmûd Shâh (II), (son of No. 16?) .....	1 year.	none.	illegible.	23rd Rabî'... (?)	896	
20	Shamsuddîn Abul-Naqr Muzaffar Shâh,	3 y. 5 m.	to 903	896	898	896 to 899	
	<i>E. The House of Husain Shâh.</i>						
21	'Alâuddîn Abul Muzaffar Husain Shâh,	27 y., or 29 y., or 29 y. 5 m.	to 927* (929?)	899, 900, 912, 914	903, 907, 908, 909, 911, 915, 916, 918, 919, 922, 925.	899 to 927 (929?)	* mentioned in Baidâ'î as reigning in 901.
22	Nâsiruddîn Abul Muzaffar Nuqrât Shâh, (son) .....	13 y., or less, or 16 y.	to 939	922, 924, 927	929, 930, 933, 936, 937.	927 (929?) to 939	
23	'Alâuddîn Abul Muzaffar Fîrûz Shâh (III), (son) .....	3 months	none.	939	939	939	
24	Ghiyâsuddîn Abul Muzaffar Mahmûd Shâh (III), (son of No. 21)—de- feated by Sher Shâh, .....	none.	to 944, dies 945	943	941	940 to 944	













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"It will flourish, if naturalists, chemists, antiquaries, philologers, and men of science, in different parts of *Asia*, will commit their observations to writing, and send them to the Asiatic Society at Calcutta. It will languish, if such communications shall be long intermitted ; and it will die away, if they shall entirely cease." SIR WM. JONES.

---

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- 
- Page 61, line 36, *for मन read मनो.*  
 — 64, line 30, *for चंपका read चंपको.*  
 — 71, line 17, *for जाया read जायो.*  
 — 74, line 33, *for एधनम read एधनम्.*  
 — 81, line 6, *for चय read चयु.*  
 — 81, line 33, *for ककुचं read कुकुचं.*  
 — 81, line 33, *for ककुमम् read कुकुमम्.*  
 — 85, line 22, *for Skr. Pr. and गोखामी read Skr. गोखामी and Pr. गोसामी.*  
 — 80, line 37, }  
 — 86, line 9, } *for मिरिच read मरिच.*  
 — 100, line 6, }  
 — 103, line 1, }  
 — 85, line 16, }  
 — 101, line 7, } *for दधिनः read दध्नः.*  
 — 222, line 10, *for river read G'hágrá river.*  
 — 235, line 1, *for to read and to.*  
 — „ line 25, *for downfall read downfal.*  
 — 236, line second note, *for Koch read of Koch.*
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# JOURNAL

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Part I.—HISTORY, LITERATURE, &c.

No. IV.—1873.

*Note on two Muhammadan Coins.*—By THE HONORABLE E. C. BAYLEY,  
C. S. I.

I have the honor to bring to the notice of the Society two fine gold Muhammadan coins which I have lately seen. They are both as yet undescribed.

The first is a gold coin of Náçir-uddín Khusrau, the usurper who ascended the throne of Dihlí after the assassination of Qutb-uddín Mubárák in 720 A. H., and reigned a little more than four months.

The coin is in beautiful preservation and weighs about 169 grains.

It is of the same type as the silver coin, described as No. 155 of Thomas' 'Pathan Kings.' The marginal inscription is, however, complete and runs,

ضرب هذه السكة فيحضرت دهلي في سنة عشرين و سبعمائة

In the centre, too, of the reverse, the word preceding "الرحمن" reads clear as "ناصر" "Náçir ul-rahmán." The drawing of the original of Mr. Thomas' coin as given in the plates (Pl. iii, fig. 73) seems as if the latter had been imperfect at this word. The legends are, therefore, probably the same, except as to the denomination of the coin given in the margin.

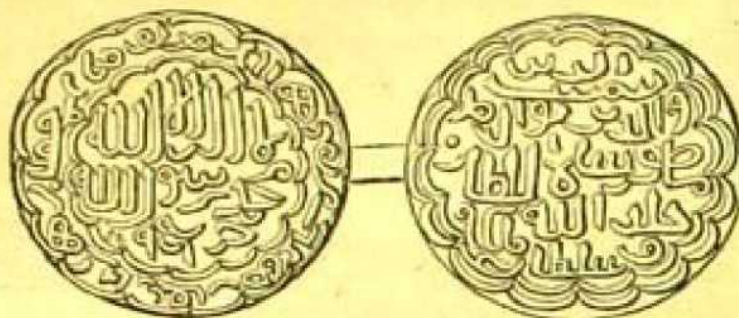
The gold coin which I have above described, is in the possession of Col. J. J. H. Gordon of the 29th Regiment Native Infantry, who procured it at Peshawar.

The other coin is also a Muhammadan coin, but belongs to a later date and another mint. It is a coin of the Bengal usurper Muzaffar Sháh, and



also greatly resembles the silver coin of that Monarch, figured by Marsden, (Pl. xxxv, fig. DCXCII) and attributed by him to Shams-uddīn Altamsh.

Major Waterhouse has been good enough to photograph this interesting coin, and I enclose a copy of the photograph.



I give the legend as I read it in full, but there may be some doubt as to one word and as to the date, of which more presently.

#### REVERSE.

Muhammadan profession of faith, or "Kalimah," with the date.

Margin—the names and titles of the four companions.

#### OBVERSE.

شمس الدنيا والدين ابوالظفر مظفر شاه  
سلطان خلد الله ملكه و سلطنته

The first difficulty is as to the title "ابوالظفر." The legend in this line and that below it, is very much cramped at the end, and is with difficulty legible. I read this word therefore with some doubt, it is possibly meant for ابوالظفر.

Unfortunately, the chief doubt of the reading centres in the *date*. The numerals are preceded by two scarcely legible groups of letters, which I take to represent في سنة, and these cover the numerals, which are very ill executed. Attached to the marginal scroll on the left may be seen a triangular mark. This may be either a part of the scroll itself, or it may be intended for the cipher ٨ or 8.

On the other hand, the extreme right hand cipher, if examined by a glass, resolves itself clearly into two, and it may therefore either stand for ٦ or 6, or for • and ١, i. e., "0" and "1." The date may therefore be read as 901, or 896, indifferently.

This is unfortunate, for the date of this king is uncertain. We know but little of him. The main facts which seem to be clear are, that he murdered his immediate predecessor Mahmūd Sháh, and at once ascended the throne. After some time a rebellion arose, headed by his eventual successor 'Alá-uddīn Husain. It would appear, moreover, Muzaffar Sháh was before long driven into the fortified city of Gaur, and that he held his own within this refuge for a very considerable time, defeating all the attacks of his opponents. In the end, however, they triumphed; one account says by the treachery





of his courtiers, whom he had disgusted by his cruelty ; another story is that emboldened by success he rashly hazarded a battle outside his fortification, and fell in the contest.

The popular dates assigned to this king vary very much, but it is specifically stated that his reign lasted three years and five months.

One set of dates, that most generally accepted, carries his reign as far down as 903, which would place his accession in either the beginning of 899 or end of 898, A. H. ; but, as will be seen, this is probably too late.

The only one point on which there is no doubt is that he erected a building at Gaur in 898. This is testified by the inscription published in the Society's Journal, Vol. XLII, p. 291, by Mr. Blochmann from the Gaur impression furnished by General Cunningham.

Another piece of evidence, but a less conclusive one, is the coin published by Marsden, Pl. xxxviii, No. dccxcii, and which is dated in 899. It is attributed by Marsden to 'Alá-uddín Husain ; but if correctly attributed, as is probable, it is, I think, indirect evidence, *not* that Muzaffar Sháh was then dead, but that he was still alive in possession of Gaur. For *this* coin of 'Alá-uddín is struck at Fathábád, a mint of which I believe no other specimens exist, whereas his later coins bear the mint mark usually of "Jannatábád," the well known mint name of new Lak'hnaúti or Gaur. It is of course more than probable that 'Alá-uddín Husain, in the flush of victory and with his adversary penned up and beleaguered in a fortress, at once assumed, while himself in camp or at some obscure town, the regal style and struck coins, while Muzaffar Sháh might still have done the same inside his strong fortress.

The facts we have then are these : Muzaffar Sháh was reigning in 898. He was probably still reigning but penned up in Gaur at some period in 899. He reigned three years and five months.

All of these facts are consistent with the dates either of 896 or 901 A. H., but in either case this coin must mark *one* extreme limit of Muzaffar's Sháh's reign. My own feeling is rather to read the date as 901 A. H., resting mainly on the general assignment of a later date to him by native historians, and on the appearance of the date itself. I am bound to state, however, that such authorities as General Cunningham and Mr. Blochmann prefer to read 896.

This coin was found at Gaur some years ago, and is in the possession of E. Lowis, Esq., C. S.



*Notes on Two Copper-plate Inscriptions of the Twelfth Century, A. D., recording Grants of Land by Govindachandra Deva of Kanauj.—By*  
BA'BU RA'JENDRALA'LA MITRA.

In April last, I received from Mr. E. T. Atkinson of Allahabad two copper plates bearing Sanskrit inscriptions, together with a transcript in modern Devanāgarī and an English translation of one of them. Mr. Atkinson informed me that the plates "had been found in the village of Basāhi, about two miles north-east of the tahsili town of Bidhunā, in the Etāwah District. The village is in a small *kherā* or mound into which a Thākur cultivator was digging for bricks to build a house. He came on the remains of a pakkā house, in the wall of the *dālān* of which were two recesses (*tāk*), and in each of these recesses was a plate."

No. 1, the smaller of the two plates, measures 16 inches, with an average breadth of 10½ inches. It has a clasp rivetted on the middle of its upper edge to which is attached a chain of two rings of unequal thickness, holding a heavy bell-shaped copper seal. The legends on the seal are a figure of Garuḍa, the vehicle of Viṣṇu, and a conch shell, a rude imitation of the famous *pāñchajanya* conch or war trumpet of that divinity, with the name of S'ri Govindachandra Deva in the middle. The seal is peculiar to the last line of the Kanauj kings, and implies that those who adopted it were the especial followers of the Vaishṇava faith.

The writing on the plate extends to twenty-two lines, the last beginning at about the middle of the lower edge. The character is the well-known Kuṭila, deeply cut, and in an excellent state of preservation.

The record was first sent to Paṇḍit Bāpudeva S'āstrī, who had it deciphered and translated by one of the paṇḍits of the Sanskrit College of Benares. The transcript prepared by the paṇḍit is generally correct, and is annexed below with a few slight alterations; but the translation, being loose and periphrastic, has been replaced by another.

The subject of the inscription is the grant, to an astrologer named Aḥneka, of a village named Vāsābhi, in the canton of Jiāvani, in the Etāwah district. The donor is Rājā Govindachandra Deva of Kanauj, and the date of the gift, Sunday, the 5th of the waxing moon in the month of Pausa, Samvat 1161, corresponding with the end of December in the year 1103 of the Christian era. The boundary of the village is given in full, and Mr. Aikman, who communicated the plate to Mr. Atkinson, identifies the place with the modern *kherā* village of Basāhi where the record was found. He says, "The only name like Jiāvani in Pargannah Bidhunā is Jiva Sirsāni, about ten miles south-east of Bidhunā, which has a large *kherā*. The name





Bándhama still exists as the name of a village about  $2\frac{1}{2}$  miles east of Basáhi. Pusáni may be identified with Pusaoli, two miles south of Basáhi. For Varavvalá the local paṇḍits give Belgur, two miles southwest; for Banthara, two miles west of Basáhi. Sávahada is apparently the modern Sabhad,  $2\frac{1}{2}$  miles N. N. W. of Basáhi. All these are kherá villages with which the whole north-east of the Bidhuná Parganah appears to be studded. Tradition has it that Sahad in the Phaphúnd Parganah, which is now but a kherá, was the site of the elephant stables of the rulers of Kanauj, and, though there is now no vestige of a wall, the villagers still point out the sites of the gates, as the Dihli Darwázah &c."

The attesting witnesses to the gift were the high priest, the accountant general, and the warder of the palace, the conveyancer being a man of the name of Vijaya Dása, son of Paṇḍit Kuke.

No. 2 measures eighteen inches by eleven and a half. It originally had one or more rings and a seal attached to its top: but they are now lost. Its corners are broken, and the inscription, which extends to twenty-four lines, has been very much defaced by rust, making it quite illegible in some places. Owing to this the paṇḍit, who deciphered the first plate, could not make anything of the record. Careful clearing and an impression taken under a copper plate printing press, have, however, enabled me to read a good part of it, and filling up such portions as are irretrievably lost of the preamble, which is the same as in a record published in the twenty-seventh volume of this Journal, and the concluding imprecatory and commendatory verses from several land grants already published, I have succeeded in restoring the record with the exception of a few proper names of places which are not of any material importance. The portions taken from other records have been enclosed in brackets in the subjoined transcript.

The subject of the patent is the gift of two villages by Govindachandra to a Thákur of the name of Devapála S'armá, son of Thákur Udyi, and grandson of Thákur Yogi, of the Kásyapa clan. The title of the donee and his ancestors appears in its ancient form of Thakkura. The date of the gift is the third of the wane in the month of Phálguna, Samvat 1174, or just thirteen years after the first grant. The dates are given, in both cases, both in letters and figures, and so there is no doubt whatever about the accuracy of my reading.

The preamble of the first grant opens with a reference to a dynasty of which one Gáhaḍavála was the founder, and Karlla the last prince. One of the descendants, some unknown generations removed from Gáhaḍavála, was Mahiála, and after some generations Bhoja, who does not appear to have been the immediate predecessor of Karlla. Of these several names, that of Bhoja is the most important. As a sovereign of Kanauj, he must be one of the two Bhojas of the Sáran plate noticed by me in my paper "on a Land



Grant of Mahendrapāla Deva of Kanauj,"\* probably the last who was the same with the "Lord Paramount" named in the Gwāliār inscription translated by me and included in my paper on the "Vestiges of the Kings of Gwalior,"† and noticed also in my essay on the "Bhoja Rājā of Dhār and his Homonyms."‡ The date of the last Bhoja of Kanauj was 885, A. D.,§ and that of the Bhoja of Gwāliār 875, A. D.,|| showing an interval of only ten years which may reasonably be supposed to have been included in a single reign. This identification would make the dynasty of Gahaḍavāla to be the same with that of Devasākti, which, according to my calculation, commenced in the year 779, A. D.¶

When Karlla, the last prince of the dynasty, died, cannot be ascertained; but it must have been at about the third quarter of the eleventh century. The inscription notices a revolution immediately after his death; perhaps he was destroyed by a rising of his own people, who expelled his descendants from Kanauj and made over the kingdom to Chandradeva, or at least helped him to take it.

The dynasty of the last named prince was founded by Yasovigraha, whose name occurs in a large number of inscriptions; his date, however, is nowhere satisfactorily settled.\*\* His son Mahichandra was the father of Chandradeva. No inscription of either of these has yet been met with. Of Madanapāla, the son and successor of Chandradeva, an inscription has been published, bearing date the 3rd of the waxing moon in the month of Māgha, Samvat 1154 = 1097 A. D.†† According to the inscription under notice he was the reigning sovereign in 1103, A. D., when his son Govindachandra, as heir apparent, gave away the village of Basāhi.

The second inscription describes the dynasty of Yasovigraha, but makes no mention of the line of kings which preceded it. According to it Govindachandra was reigning sovereign or Mahārāja on the 3rd of the wane in the month of Phālguna, in the Samvat era 1174 = A. D. 1117. So he must have succeeded his father between 1103 and 1117 A. D. On the 6th of the wane in the month of Māgha, Samvat 1182 = A. D. 1125, he gave away a village in the canton of Haladoya,‡‡ and his reign may be assumed to have

\* Ante XXXIII, p. 321.

† Ante XXXI, p. 391.

‡ Ante XXXII, p. 91.

§ Ante XXXI, p. 409.

|| Ante XXXIII, p. 96.

¶ Ante XXVII, p. 409.

\*\* A summary of all the Yasovigrahas noticed in inscriptions will be found in a footnote to a paper entitled "Of two Edicts bestowing land recorded on plates of copper." Ante XXVII, p. 217.

†† Ante XXVII, p. 218.

‡‡ Ante XXVII, p. 247.



extended to the close of the third decade of the twelfth century, and probably to a much later period. His son and successor was Vijayachandra. He is said to have died in 1168 A. D.,\* leaving the kingdom of Kanauj to his son Jaychandra, the last king, from whom the country passed to the Muhammadans. There are several copper plate patents extant of this sovereign. Six of them found by Captain Fell at Benares, and now in the Library of the Asiatic Society, bear dates as follow:—

Nos. 1008-3 and 6, Samvat 1233 A. D. 1175.

No. 1008-4, Samvat 1234 = A. D. 1176.

Nos. 1008-5, 7 and 8, Samvat 1236 = A. D. 1178.

Lt. Col. Caulfield's Faizábád plate,† Samvat 1243 = A. D. 1187.

His overthrow by the Muhammadans took place in A. D. 1193, which gives a period of about twenty-six years for his reign.

As the history of these sovereigns has been discussed\* at length by Colebrooke, Wilson, and others, and I have at present neither the time nor the inclination to write a monograph, I shall close these brief notes with a few remarks on the nature of the gift and on the various kinds of rights, taxes, and cesses which they bestowed on the donees.

The gifts, as a rule, are absolute, and to last, in the metaphorical language generally used are such occasions, "as long as the sun and moon will endure." Their resumption is also prohibited with dire imprecations. But no where is any mention made of the right of actual possession of the donor. The first impression produced on reading a copper-plate grant is that the proprietary right of the donor is conveyed to the donee, but looking to the fact that almost invariably there is a clause in the deed which says "the inhabitants and local officers, should render to the donee all rents, taxes," &c., or other words to that effect, the conclusion becomes evident that the right conveyed is, like that of the zamíndárs, limited to rents, &c., and does not extend to actual possession, which is taken for granted will rest with the tiller of the soil, except of course in the cases of unoccupied land, forests, mines, wastes, &c., which are frequently separately mentioned. This peculiarity in the land tenures of India was first pointed out by Colonel Sykes, and it shows the existence of zamíndári rights of middle men apart and distinct from the occupancy rights of the cultivators. It shows also that the right of possession did not rest with the king. He was entitled to demand revenue or *kara*, and cesses, but not to dispossess the occupant at will and pleasure. However extraordinary this may appear to persons who associate the idea of Indian sovereignty with every thing that is arbitrary and autocratic, it is a fact which is in perfect keeping with the laws of the land.

\* Ante XXVII, p. 218.

† Colebrooke's Essays, II, pp. 289, 295, and 296. Journal, As. Soc., II., pp. 341. and 342; XXVII, p. 218. Ante X, p. 98.



According to the *Tattvakaumudi*, there were formerly four classes of tax-gatherers intermediate between the actual occupant on the one side and the king on the other; these were the Grāmādhyaksha, the Kautumbika, the Vishayādhyaksha, and the Sabhādhyaksha, and the revenue passed successively through their separate hands before it reached the king.\* Whether these persons were paid officers, or owners in some sense or other, I cannot ascertain, but in the *Vivāda Chintāmani* a rule is quoted which says, "A gift of land made by the king by taking it from its proprietor through anger or avarice, or under a pretext, (*i. e.* not lawfully resumed) is illegal."†

There are laws quoted in it of the rights of squatters and lease-holders, apart from those of permanently fixed cultivators, who held the position of the ryots of the present day.‡ This becomes the more apparent from the nature of the right of the king in land as defined by S'rikriṣṇa Tarkā-lankāra in his commentary on the Dāyabhāga of Jimutavāhana. "When the owner of one kingdom," says he, "buys a country or the like from the owner of another, the right acquired in his purchase is that of realising revenue, which the seller had, and not anything similar to the right acquired in land by inheritance, which is also connected with land, and which is not of the same nature with the former, and cannot be produced by its transfer, the discordance being in their natures."§ Accordingly, we find in one of the Sanchi inscriptions a vassal of Chandra Gupta purchasing from one of his own subjects a piece of land, at the legal rate, for 12,500 dīnārs for a Buddhist temple.||

The rights conveyed by the patents also indicate this very clearly. The first right named in the records under notice is called *bhāga* or "a share" of the produce. It is, I believe, the same with the *bhāgajota* of the present day, in which an owner allows the cultivation of his land by a farmer on the understanding of receiving a share (*bhāga*) of the produce, the cost and labour of cultivation being borne by the latter. The share varies from four to ten-sixteenths, according to the nature of the soil and other circumstances; but it is ordinarily fixed at half the produce, which in the case of paddy is sometimes meant to include the straw, and sometimes to omit it. Owners of land are occasionally required to supply seed grain; but

\* यथा हि ग्रामाध्यक्षाः कोटस्त्रिकेभ्यः करमादाय विषयाध्यक्षाय प्रयच्छन्ति, विषयाध्यक्षाः सभाध्यक्षाय, स च भूपतये इति ।

† Prasannakumar Tagore's Translation, p. 124.

‡ Ibid., pp. 130-31.

§ अत एव राज्यान्तराधिकारिणः सकाशात् अन्यरूपतिना क्रीते राज्यान्तरादौ विक्रेतृस्त्वं सजातीयं करग्रहणोपयोगिस्त्वमेव तस्य तद् जायते, न तु दायप्रतिगृह्णत-भूम्यादिदत्तिस्त्वसजातीयस्त्वं तत्र भूम्यादौ तथाविधस्त्वस्त्वेन तद्विरोधात् तादृशस्त्वान्नरोत्पत्तिसम्भवात् समानजातीयोत्पत्त्येव विरोधात् ।

Bharatachandrā Siromani's edition of the Dāyabhāga, p. 18.

|| Ante Vol. VI, p. 455.





this is not common. At the time of Govindachandra, the share was, I believe, a tenth, as I find in the inscription No. 1 the word *bhága-kuṭaka-das'a*, which means the share (*bhága*) for a plough-share (*Kuṭaka*) to be *das'a* "ten," the "ten" meaning either ten hundredths or one tenth. The ordinary practice of calculating by fractions of the rupee or sixteenths has, I imagine, not been adopted here, as the very next word *bandha viñs'ati* twenty or a twentieth for mortgages, would in that case mean twentysixteenths, which would be absurd. One-twentieth or twenty-hundredths—most probably the former was the rate of cess for mortgages. But whatever the rate the right was clearly limited to rent, and did not extend to actual possession.

The second right of the zemindar is named *Bhoga*, literally meaning enjoyment, but most probably intended to imply usufruct, as in the current terms *Bhogabandhak*, *Bhogalābh*, *Bhogādhikār*, *Bhogasana*, &c., a mortgage is meant in which the article pledged is permitted to be used in lieu of interest. It might mean the actual possession and enjoyment of the land, but that cannot be the object intended by the conveyancer, for in that case he would not have described it as "payable," and enjoined the inhabitants or ryots to "render it." The condition of payment, or rendering, implies that the land was left in the possession of the ryots, and the donee was still to have some enjoyment of it. This could be effected by allowing the landlord to have the right of using it when the land was left fallow, either as field for grazing his cattle, or taking the grass from the field after the cultivator's crop had been removed from it. A right of this description is enjoyed in the North-Western Provinces to this day; and a case once came up in appeal to the High Court of Calcutta from Behar in which the zemindar claimed the right of taking grass from the field of his ryot, after the ryot had removed his crop. This is indicated in a passage in the *Vivāda Chintāmaṇi* where it is stated that "the produce of seeds thrown from one field into another by a storm or a deluge, is enjoyed by the proprietor of the field,"\* *i. e.*, the produce resulting without the intervention of the ryot is due to the zemindar, even during the currency of a lease, unless otherwise provided for in the lease.

The next is *Kara*, *i. e.*, rent proper or revenue, in which a fixed amount, whether payable in money or kind, has to be rendered for the use of land irrespective of the actual produce at any given time. The standard for fixing the rate was doubtless the produce, but when the rate was once fixed, the produce was no longer taken into consideration.

The next is *Pravani kara*, or a toll on quadrivials, *i. e.*, a toll at turnpikes, it being very unlikely that a traveller was called upon to pay a toll at every cross road. The translator of the Delhi Collège copper-plate

\* Prasannakumār Tagore's edition, p. 131.



fancies that from the mention of this tax, "it may possibly be inferrible that the impoverishment of the imperial coffers had recently given rise to a new species of fiscal exaction ;"\* but the impoverishment is altogether imaginary ; there is nothing to show that Govindachandra's reign was financially a bad one, and needed any extraordinary fiscal measures for relief. On the contrary, Govindachandra and his two successors, who exercised supremacy for nearly the whole of the twelfth century, and possessed the finest and richest portion of India, including the Gangetic doab, a good portion of Oudh down to Benares, and an undefinable portion of the tract of country to the south of the Ganges and Jumna from Tikkari to Gwalior, were rich and prosperous, the most distinguished sovereigns of their times, lavish in bestowing entire villages, not unoften two, three, or more at a time, in free gift to Bráhmans, it is extremely improbable that they laboured under pecuniary difficulties. Were the difficulty to be admitted as a fact, still the question would remain, how could the bestowal of the right to raise such a tax relieve the tightness of the imperial exchequer ? To make it really beneficial, the donor should have reserved the right for himself, and not given it away to a subject.

These four forms of taxation are mentioned in the second plate, and the grant appears to be limited to the enjoyment of these, which the tenants were to contribute. In the first grant the gift is absolute, including the power of administering justice, the punishment being limited by the nature of the offence, *sadrisáparádha danda*. But even here the tenants are not altogether lost sight of, nor their rights annulled, for it ordains that the share (*bhága*) for each plough, *kútaka*, should be ten or a tenth (*das'a : bhága-kútaka-das'a*).

The right of the donee in mortgage is fixed at one-twentieth or five per cent., which is somewhat more than the stamp tax of the present day. He is authorised also to raise a tax for beggars—a poor rate—which is to be equal to a *prastha*, or four *kuḍavas*, which is equal to "forty-eight double handfuls ;" but whether that was required to be contributed by every tenant, or for every biggah of land cultivated, I cannot ascertain. The tax is named *agu-prastha*. A similar rate of tax is also fixed for the administration of justice *aksha-paṭala-prastha*. For the watch and ward of the village, a similar rate is likewise fixed. It is called *prátihára-prastha* or a *chaukidári* tax, and in some villages of Bengal, it is still current, though the measure of corn given is different. Royalties are also fixed for mines (*ákara*), collection of fragrant grass, meaning evidently the wild *Bená* grass or *Khaskhas* (*turushka-danda*) ; wild tree-cotton (*dhara*) ; reeds for mat-making (*kafa*) ; and trade in precious metals and jewels, collectively called *hiranya* or gold. In the translation of the Inscription published in the twenty-seventh volume of this Journal (p. 249), the word *turushka-danda* has been rendered into

\* Ante XXVII, p. 248.



“Mahommedan amercements,” the translator suggesting that it implies that “the encroachment of the northern invaders were gaining head, and that their dominion was becoming to be recognised;” but I cannot accept this version as correct. It assumes the presence in Etawah of such a Moslem population as would be worth taxing; and that is far from being probable. The word *turushka* doubtless means a Turk or a Moslem, and it is undeniable that the incursions of Mahmúd Ghaznavi did leave some of his followers scattered in different parts of India, but they did not make up such a population in villages as to make judicial fines imposed on them of any material value. At any rate such fines do not by any means indicate Moslem sovereignty in India, nor does their imposition by Bráhmans under the orders of a Hindu king in the year 1103 imply its extension. It may be added, that the right of administering justice carries with it that of fining, and the donee who got the right, enjoyed the fines from Hindu and foreign offenders alike, and a special mention of “Mahommedan amercements” was not at all needed. But the most important argument against the theory appears to me to be the position which the word *turushka danda* occupies in the text. It is preceded by *ákara*, “mine,” and followed by *dhara*, “tree cotton,” and *kafa* “mat reed,” and one naturally expects it to be the name of some article of produce; and this is supplied by the old meaning of *turushka* “an aromatic to the taste,” added to *danda*, “a stick,” an aromatic reed. In the western parts of the Burdwan district, where the khas-khas is common, a royalty is to this day charged by zemindars for permission to cut it.

*Transcript of Inscription No. I.*

१० ॐ नमो भगवते वासुदेवाय ॥

तमाद्यं सर्वदेवानां दामोदरनुपास्यते ।

त्रैलोक्यं यस्य वक्तीवाक्रोडानास्थं बलिवयो ॥ १ ॥

वंशे गाहडवालाख्ये बभूव विजयो नृपः ।

महिषालसुतः श्रीमान् नलनाभागसन्निभः ॥ २ ॥

याते श्रीभोजभूषे विबुधवरबभूनेवसीमातिथिलं

श्रीकर्णं कीर्तिशैथं गतवति च नृपे स्नात्यये जायमाने ।

भर्तारं यं धरित्री त्रिदिवविभुनिभं प्रीतियोगादुपेता

वाता विश्वस्य पूर्वं समभवद्विह स स्नापतिचन्द्रदेवः ॥ ३ ॥

द्विषत्क्षितिभूतः सर्वान् विधाय विवशान् वशे ।

कन्याकुलोः करोद्राजा राजधानीमनिन्दिताम् ॥ ४ ॥

तनाजनि द्विषदिलापतिदन्तिमिहः क्षोणीपतिर्मदनपाल इति प्रसिद्धः ।

येनाक्रियन् वडशः समरप्रबन्धाः सन्नर्तितप्रहृतश्चक्रवन्धवन्धाः ॥ ५ ॥

तस्मादजायत नरेश्वरहृन्दवन्द्यपादारविन्दयुगलो ज्वलितप्रतापः ।

क्षोणीपतीन्द्रनिष्ठको रिपुरङ्गभङ्गी गोविन्दचन्द्र इति विश्रुतराजपुत्रः ॥ ६ ॥



संवत् सहस्रैके एकपट्टत्तरशताभ्यधिके पौषमासे शुक्लपक्षे पञ्चम्यां रविदिने  
संवत् ११६१ पौषसुदि ५ रवौ ॥

अद्येहासतिकायां सकलकल्मषक्षयकारिण्यां यमनायां स्नात्वा यथाविधानं मन्त्रदेव-  
हृषिमनुष्यभूतपितृर्क्षयित्वा । सूर्यं भट्टारकं सर्वकर्तारं भगवन्तं शिवं विश्वाधारं वासुदेवं  
समभ्यर्च्य उतवहं ज्ञत्वा । जीष्वावनीपत्तणायाम् वसभीषामे समस्तमहत्तमजनपदान् सम्बो-  
धयति । यथा ग्रामोऽयं मया चैववनमधूकाद्याकाशपातालमहितः सहस्रापराधदण्डः\*  
भागकूटकदश, बन्ध, विंशति, अगप्रस्थाक्षपटलप्रस्थ, प्रतीहारप्रस्थाकर, तुरष्कदण्डधर-  
कर, हिरण्यसर्वादायसंयुक्तः । पूर्वस्यां बान्धमौच्यग्रामः पश्चिमायां वडव्वलाग्रामः दक्षि-  
णस्यां पुमोणीग्रामः उत्तरस्यां सोवहदग्रामः एवं चतुराघाटविशुद्धः । मातापित्रोरात्मनश्च  
यशःपुण्यविष्टये जलबुद्बुदाकारं जीवितं दानभोगफलां लक्ष्मीं ज्ञात्वा । बह्वृचशाखिने  
गौतमगोवाय गौतम, अश्वितथ, अङ्गिरस, विप्रवराय मेमेपौवाय कुल्येपुवाय ज्योतिर्विदे  
ब्राह्मणशालेकाय महाराजपुत्रश्रीमद्भोविन्दचन्द्रदेवेन उत्तरायणसङ्क्रान्तौ कुशपूतेन हस्तो-  
दकेन चन्द्रार्कं यावत् शासनत्वेन प्रदत्तः ।

ये यास्यन्ति महीभृतो मम कुले किंवा परस्मिन् पुर-  
स्तेषामेष मयाञ्जलिर्विरचितो नादेयमस्मात् कियत् ।

दूवांसावमपि स्वधर्मनिरता दत्तं मया पात्यतां

वायुर्वास्यति तपस्यति प्रतपनः शुक्ला मुनीनां वचः ॥ १ ॥

वज्रभिर्वसुधा भुक्ता राजभिः सगरादिभिः ।

यस्य यस्य यदा भूमिस्तस्य तस्य तदा फलं ॥ २ ॥

स्वदत्तां परदत्तां वा यो हरेत् वसुधैव कुटुम्बकम् ॥

स विष्टायां कृमिर्भूत्वा पितृभिः सह मज्जति ॥ ३ ॥

भूमिं यः प्रतिगृह्णाति यस्तु भूमिं प्रयच्छति ।

तावुभौ पुण्यकर्माणौ नियतं स्वर्गवामिनौ ॥ ४ ॥

तद्भागानां सहस्रेण वाजपेयशतेन च ।

गवां कोटिप्रदानेन भूमिर्हर्ता न शुद्ध्यति ॥ ५ ॥

लिखितञ्च पुरोहितश्रीजागूकमेहत्तकश्रीब्राह्मणप्रतीहारश्रीगौतमी एषां सम्मत्या पण्डितः  
श्रीकूकेपुत्रविजयदासेनेति ॥

### Translation of No. 1.

*Om ! Salutation to the glorious Vāsudeva.*

1. I adore Dāmodara, the first among the Gods, the three folds of skin on whose belly are said to be the three worlds in his lap.

2. In the dynasty of Gāhaḍavāla was born the victorious king, comparable to Nala and Nabhāga, the son of the auspicious Mahāla.

3. When king Bhoja had become an object of sight to the charming wives of the gods, (i. e. died); when the career of king Ś'ri Karila had come to a close, when there was a revolution, then Chandradeva became king. On gaining him, who was like the lord of heaven, for her husband, earth was gratified. He was a protector of the universe.

4. Having brought under subjugation all irrepressible and inimical kings, the sovereign established his reproachless metropolis at Kānyakubja.





5. Of him was born the renowned of earth, Madanapála—a lion to the inimical elephant Ilápati, (king of Ilá), who engaged himself in frequent warfare,\* and made the trunks of his decapitated enemies dance (in the battle field).

6. Of him was born the celebrated prince Govindachandra, whose lotus-like feet were adored by hosts of mortal sovereigns—a prince of refulgent might, the ornament of mankind, and the disturber of the enjoyment of his enemies.

On Sunday, the 5th of the waxing moon, in the month of Pausha, of the Samvat year one thousand one hundred and sixty one, Samvat 1163, Pausha, 5th Sudi, Sunday.† Having this day bathed here at Asatika,‡ on the sin-destroying Yamuná,—having offered libations of water to the tutelary divinities, sages, (rishis) men, animals and manes,—having worshipped the sun, the sovereign and glorious lord of all, S'iva, and the asylum of the universe Vásudeva,—having duly made offerings to the fire (the prince) thus addresses all the respectable inhabitants of the village of Vasabhi, in the district or circle (*Pattana*) of Jiyávaní. This village with all its fields, and orchards of Madhuka and mangoes, together with the sky over it and the region below it, as also the power of administering justice, the right to a tenth for every ploughshare, to a twentieth on mortgages, to royalties or shares (*prastha*) of corn, for beggars, justice, watch and ward, mines, aromatic reeds and gold, along with all other,—the village having on its East the village of Bandhamauni; on its West the village of Vedabhala; on its South the village of Pusáni; and on its North, the village of Sávahada, thus bounded on four sides—for the increase of virtue and good name of my parents and myself, and knowing life to be as impermanent as a bubble on water and the value of wealth to lie in charity and enjoyment, has been granted as a sásana for the period of the sun and the moon to the astrologer Bráhmāna, Ahneka, son of Kulye, and grandson of Meine, of the Bahvrish Sákha (branch) of the Gautama clan (*gotra*), having Gautama, Avitatha, Angiras'a for his threefold *Pravara*, by Govindachandra Deva, son of the Maharája, on the winter solstitial conjunction (of the month of Pausha and Mágha) with water held in his hand, and purified by Kus'a grass.

1. With folded hands this is my prayer to all future sovereigns of my and other dynasties, that they should never take any tribute from this village—not even a blade of durba grass. Those who wish to do their duty should, obedient to the mandates of sages, preserve intact my gift, (as long as) the wind blows and the sun continues to shine.

2. This earth has been enjoyed by many kings, including Sagara and others. To whomsoever belongs the earth for the time being, he enjoys the fruit (of such gifts).

3. Whoever robs earth, whether given by himself or others, becoming a maggot, sinks with his parents into ordure.

4. Both he who accepts land and he who grants it, are equally meritorious, and they dwell eternally in heaven.

5. The alienator of land-grants cannot expiate his crime even by (dedicating to

\* The word *prabandha* means both continuous action and a treatise. The latter would imply that the king composed some treatises on tactics, but the second clause would be more in keeping with the former meaning which has been adopted in the text.

† The repetition is due to the circumstance of the date being given first in words and then in figures.

‡ Probably the name of a ghat or a village on the Yamuná.



public use) a thousand tanks, by (performing) a hundred Vājapeya rites, and by giving away in charity ten million heads of cattle.

This was written by Vijayadāsa, son of the Pandit S'ri Kuke, with the consent (or in the presence?) of the family priest S'ri Jāguka, the chief accountant (*Mehattaka*),\* S'ri Brāhmana, and the warder (*Pratihāra*) S'ri Gautami.

*Transcript of Inscription No. II.*

- १ (खलि ॥ अकुण्डोत्कण्डवैकुण्ड) कण्ठपीठलुठत्करः । संरम्भः सुरतारम्भे स त्रियः (त्रेयसेऽसु) वः ॥ १ ॥ आसीदशीतद्युतिवंशजातक्षमापाल(मालासु दिवं गतासु । साक्षादिवस्वा(निव
- २ भूरिधाम्ना) नाम्ना (यशोविष) इत्युदारः ॥ २ ॥ तत्सुतोऽभून्महीचन्द्रचन्द्रधाम-  
निभं निजम् । येनापारमकूपारपारे व्यापारितं यशः ॥ तस्याभू(तनयो नयैक-  
रसिकः क्रान्तद्विषमण्डलो
- ३ विध्वस्तोद्धतवीरयोध)तिमिरः श्रीचन्द्रदेवो नृपः । येनोदारतरप्रतापशमिताशेष-  
प्रजोपद्रवं श्रोमद्गाधिपुराधिराज्यमसमं दोर्विक्र(मेणार्जितम् ॥ तीर्थानि काशि-  
कुशिकोत्तरकोश—)
- ४ लेन्द्रस्थानीयकानि परिपालयताभिगम्य । हेमात्मतुल्यमनिशं ददता द्विजेभ्यो येना-  
ङ्किता वसुमती शतशस्त्रलाभिः ॥ तस्यात्मजो सदनपाल इति चितीन्द्रचूडा(मणि-  
विजय)ते नि—
- ५ (जगोवचन्द्रः । यस्याभिषेककलशोत्तमिः पयोभिः प्रक्षालितङ्कलिरजःपटलम्बरि-  
त्र्याः ॥ यस्यासीद्विजयप्रयाणसमये तुङ्गाचलोच्चैखलन्मायकुम्भिपदक्रमास + भरध—
- ६ (स्यन्महीमण्डले । चूडारत्नविभिन्नतालुगलितस्थानासृग्)ङ्गासितः शेषः पेषवशादिव  
क्षणमसौ क्रोडे निलीनाननः ॥ तस्मादजायत निजायतबाहुवस्त्रिवन्भाववदनवराष्ट्रग-
- ७ (जो नरेन्द्रः । सान्द्रान्तद्रवमुचां प्रभवो गवां यो) गोविन्दचन्द्र इति चन्द्र इवाम्बु-  
राशेः ॥ न कथमप्यलभन्त रणक्षमांस्त्रिष्टुप् दितुं गजानाथवज्रिणः । ककुभि वध-  
मुरधमुवज्जभ—
- ८ (प्र)तिभटा (इव यस्य) घटा गजाः ॥  
सोयं स(मस्तराजचक्रसंसे)वितचरणः परमभट्टारकमहाराजाधिराजपरमेश्वर-  
परममाहेश्वरनिजभुजोपार्जितश्रीकन्यकुञ्जाधिपत्य
- ९ (श्रीच)न्द्रदेवपादानुध्यातपरमभट्टारकमहाराजाधिराजपरमेश्वरपरममाहेश्वरश्रीमद-  
नपालदेवपादानुध्यातपरमभट्टारकमहाराजाधिराजपरमेश्वर—
- १० परममाहेश्वरश्रीमद्गोविन्दचन्द्रदेवो विजयी ( ) निवासिनो  
निखिलजनपदानुगतानपि च राजराज्ययुवराजमन्त्रिपुरोदितप्र—

\* I take this word to be the ancient form of the Uriya *Māhinti* and the Bengali *Māyiti*, an officer whose duty is to keep accounts.





- ११ तीहारसेनापतिभाण्डागारि (काचपट)लिकमिषङ्गनैमिक्तिकान्तःपुरिकदूतकरितुरगप-  
तनाकरस्नानगोकुलाधिकारिपुरुषानाज्ञापयति (बोधयत्यादिम्—  
१२ ति च ।

यथा वि(दितमस्तु भ)वतां यथोपरिलिखितग्रामौ सजलस्थलौ सलोहलवणा-  
करौ समस्त्याकरौ सगर्गापरौ समधूकाश्वनवाटिकाविटपटणयूतिगो—

- १३ (चरपर्यन्तौ सोर्ध्वा)धश्चतुराघाटविशुद्धौ स्वमीमापर्यन्तौ चतुःसप्तत्यधिकैकादशशत-  
संवत्सरे फाल्गुने मासि कृष्णपक्षे तृतीयायां तिथौ अङ्कतोऽपि संवत् ११०४ फाल्गु  
१४ .....तीरसमावामेन मन्त्रपूतोदकेन स्नात्वा विधिवत् मन्त्र-  
दे(व) मुनिमनुजभूतपितृगणान्स्पर्षयित्वा तिमिरपटलपाटनपटुमहसमुष्णरोचिषमुप-  
स्थायै(पधिपतिश्च—  
१५ लशेखरं समभ्य)र्च्य त्रिभुवनवातुर्व्यासुदेवस्य पूजां विधाय पायसे च हविषा हविर्भुजं  
कृत्वा मातापित्रोरात्मनश्च पुण्यश्रेष्ठोऽभिष्टुभ्ये काश्यपगोत्राय काश्यपाचार्यनेत्रु—  
१६ वप्रवराय ठकुरश्रीयोगिपौत्राय ठकुरश्रीउदैपुत्राय ठकुरश्रीदेवपालशर्मणे ब्राह्मणा-  
यास्माभिर्गोकर्णकुशलतापूतकरतलोदकपूर्वमाचन्द्रार्कं यावत् (शासनी—  
१७ कृत्य) प्रदत्ताविति मत्वा यथादीयमानभागभोगकरप्रवणिकरप्रभृतिसर्व्यदायानाज्ञा-  
विधेयीभूय दास्यथा ॥

भवन्ति चात्र श्लोकाः ।

भूमिं यः प्रतिगृह्णाति यस्य भूमिं

- १८ प्रयच्छति । उभौ तौ पुण्यकर्माणौ नियतौ स्वर्गगामिनौ ॥ १ ॥ शङ्खं भद्रासनं क्वचं  
वराद्या वरवारणाः । भूमिदानस्य चिह्नानि फलमेतत् पुरन्दर ॥ २ ॥ सर्वानेतान्  
(भाविनः पा—  
१९ र्थि)वेन्द्रान् भूयो भूयो याचते रामभद्रः । सामान्योऽयं स्वर्गमेतुर्दपाणाङ्गाले काले  
पालनीयो भवद्भिः ॥ ३ ॥ वडभिर्वसुधा भुक्ता राजभिः सगरादिभिः । (यस्य यस्य  
यदाभू—  
२० मित्वा)स्य तस्य तदा फलम् ॥ ४ ॥ सुवर्णमेकं गामेकां भूमेरथेकमङ्गुलम् । हरद्वारक-  
माप्नोति यावदाभूतसंश्रवम् ॥ ५ ॥ तडागानां सहस्रेणाप्ययमेधशतेन च । (गवां कोटि-  
२१ प्र)दानेन भूमिहर्ता न श्रम्यति ॥ ६ ॥ स्वदत्तां परदत्तां वा यो हरेत् वसुधराम् । स-  
विष्ठायां क्षमिर्भूत्वा पितृभिः सह मज्जति ॥ ७ ॥ षष्ठिवर्षसहस्राणि स्वर्गे वसति भूमिदः ।  
२२ आच्छेत्ता चानुमन्ता च तान्येव नरके वसेत् ॥ ८ ॥ वारिहीनेष्वरणेषु शृङ्खकोटर-  
वासिनः । कृष्णसर्पाश्च जायन्ते देव (ब्रह्मस्वरुपरिणः ॥ ९ ॥ यानीह दत्तानि  
२३ पुरा) नरेन्द्र दानानि धर्माः (यथश)स्कराणि । निर्मात्यवान्तप्रतिमानि तानि को नाम  
साधुः पुनराददीत ॥ १० ॥ वाताधविधममिदं वसुधा(धिपत्यमापातमावमधुरा  
२४ विष)योपभोगाः । प्राणा(स्तृण)यजलविन्दुसमा नराणाम्भर्माः सखा परमहो परलोक-  
याने ॥ करणिकोद्भूतान् ठकुरश्री



*Translation.*

1. Let this be auspicious. May that agitation at the commencement of his dalliance with S'ri, when her hands rolled about on the neck and shoulders of eager and lustful Vaikunṭha, be to your prosperity!

2. When the line of protectors of the earth, born of the race of the ungenial-rayed orb (the sun), had departed to heaven, there lived one of the name of Yaśovigraha, the munificent, who, in the plenitude of his effulgence, was like the sun himself.

3. His son was Mahichandra, whose glory, resembling the light of the moon, was spread wide by him beyond the sea.

4. Unto him was born a son, the king S'ri Chandradeva, the lover of polity, the discomfiter of hosts of enemies, the dispeller of the gloom of impatient, heroic warriors, by whose glorious majesty was repressed the revolts of the subjects of the unrivalled great kingdom, of auspicious Gādhipura,\* which was earned by the valour of his arms.

5. Repairing, as a protector, to Kās'ī, Kusika, Uttara Kos'ala, Indrasthāna, and other places of pilgrimage, he marked the earth by the performance of a hundred *tulā* rites, in course of which he repeatedly gave to the twice-born his own weight in gold.†

6. His son was Madanapāla: that crest-jewel of the lords of the earth flourishes as the moon of his race. By the waters, which sparkled in jars at his coronation, the earth was washed clean of all the sinful dust of this iron age.

7. When he went forth to conquer, on the earth sinking under the over-powering weight of the foot-falls of his maddened and careering elephants, high as lofty mountains, the serpent Śeśha, crushed as it were by it, and having its crest-jewel fractured and thrust down into its bleeding mouth, for a time hid its face in its folds.‡

8. From him descended the king Govindachandra, even as the moon issued forth from the ocean. His long arms, extending like creepers, tied and checked all elephant-like upstart kingdoms, and he was the source of thick fluid-nectar-sprinkling eloquence.§

9. His numerous elephants could nowhere in the three quarters find worthy tuskers that could fight with them, and so they repaired to the quarter of the wielder

\* Ancient name of Kanauj.

† The ceremony is a very costly one, but it is not uncommon. Within the last ten years it has been several times celebrated in Calcutta, and in course of it not only gold, but silver, rice, paddy, sesamum seed and other articles were weighed against the donor, and presented to Brāhmans. The *Dānakhaṇḍa* of Hemādri, now in course of publication in the *Bibliotheca Indica*, contains a full description of the details of this rite.

‡ It is commonly believed that certain species of serpents bear very bright jewels on their heads; Śeśha, the king of serpents on whose head rests the earth, according to Paurānic cosmogony, has the largest jewel.

§ If the word *gavaya* be taken in its ordinary acceptation of kine, the meaning of the phrase would be "the source (whence men obtained) kine which gave thick, sweet milk."





of the thunderbolt (East) where the lord of Abhramu\* (Airāvata the elephant of Indra) was their only rival.

The same Govindachandra Deva, whose feet are profoundly adored by hosts of sovereigns, the highly revered,† the great king over great kings,‡ the supreme lord,§ the devout worshipper of S'iva,|| the sovereign of the three classes of kings, viz. As'vapati, Gajapati and Narapati,¶ maṣṭer (Vāchaspati) of all knowledge and logic, successor of the highly revered the great king over great kings, the chief lord, the devout worshipper of S'iva, S'ri Madanapāla Deva, who was the successor of the highly revered, the great king over great kings, the supreme lord, the devout worshipper of S'iva, S'ri Chandra Deva, the sovereign who, by his arms, carved the happy kingdom of Kānyakubja, reigns supreme.

He commands, acquaints and enjoins the inhabitants of(?) and those who have come thereto from other places, as also kings, queens, heirs-apparent, ministers, priests, warders, (*pratihāra*) generals, treasurers (*bhāndāgarīkas*) justiciaries (*akshapatalikas*) physicians, astrologers, guardians of female apartments (or dwellers of the zenāna,) envoys, and owners of elephants, horses, towns, mines, commons, and herds of cattle: Be this known unto you, that after bathing in water consecrated by mantras, after offering according to law water to mantras, gods, sages, mortals, elements and manes, after paying due adoration to the fiery light (sun) whose rays are potent in dispelling dense darkness, after worshipping the crescent-crested (S'iva), after performing puja to Vāsudeva, the preserver of the three regions, after offering oblations of frumenty and clarified butter to the partaker of butter (fire), for the promotion of virtue and fame of myself and of my mother and father, I have, by this patent, with water held in my hand and consecrated with Kusa grass, for the period of the duration of the sun and moon, bestowed on the third of the wane, in the month of Phālguna, in the year of Samvat one thousand one hundred and seventy-four, (in figures) Samvat 1174 Phalg., the two above written villages, together with their soil and waters, their iron and salt mines, their fisheries, pits and salt fields, their orchards of mango and madhuka trees, their gardens, topes, grass fields and pasturages, including everything above and below,

\* Name of the mate of Airāvata.

† *Paramabhāṭṭāraka*. In Sanskrit dramas *bhāṭṭāraka* means a king, but in ordinary language a revered personage is generally implied.

‡ *Mahārājādhirāja* equivalent to the Arabic *sultān us-salāṭīn*. The term may be split into two—*Mahārāja* and *adhirāja* "great king, and paramount sovereign."

§ *Parama*=supreme and *īśvara*=lord or god. The epithet has been loosely rendered into Emperor in the translation of the Delhi College plate (xxvii p. 249).

|| *Parama-Māhā-īśvara*. In the Benares inscription of Col. Stacy, it is placed in opposition to *parama vaiṣṇava*, some of the princes named being *parama māheśvara*, others *parama vaiṣṇava*. The long *ā* after *m* shows that the word is a derivative and refers to *Mahes'vara* or *S'iva*. A sectorial meaning may be objected to on the ground of the seal having the Vaisnava emblems of Garuda and conch-shell, indicating that Govinda was a Vaisnava. But the expression of equal respect for both *S'iva* and *Vishnu* is not uncommon.

¶ Evidently intended for some tributary kings. The Rājās of Orissa used to call themselves *Gajapatis*; those of Talingānā and Karnāṭa bore the special title of *Narapati*, and some of the Burmese monarchs were *As'vapatis*; but it is not at all likely that any of these bore allegiance to the kings of Kanauj. *Vide ante* xxvii, p. 24.



with their four abuttals well defined, and within their boundaries, on the Brāhman Thakkura, Devapāla S'armā, son of Thakkura Udai; and grandson of Thakkura Yogi, of the Kās'yapa clan (*gotra*) and Kās'yapāsāra-naidhu sept (*pravara*). Knowing this you should comply with his orders, and render unto him all dues, shares, rents, tributes, quadrivial tolls, &c., whatever have to be given.

On this subject are the following s'lokas :

1. (The same as the 4th s'loka of the first grant.)
2. A conch shell, a throne, an umbrella, choice horses, and excellent elephants, Parandara, are the royal insignia, which constitute the reward of giving away land.
3. Rāmachandra repeatedly intreats all present and future lords of earth (to bear in mind) that this bridge of virtue (the granting of lands) is common to all sovereigns, and should be preserved by you at all times.
4. (Is the same as the 2nd of the first grant.)
5. He who robs a gold piece (*suvarṇa*), a cow, or a finger's breadth of land, dwells in hell until the dissolution of the universe.
6. (The same as the 5th of the first grant.)
7. The same as the 3rd of the first grant.
8. The donor of land dwells in heaven for the space of sixty thousand years; the resumer, and the abettor thereof, are doomed to abide in hell for a like period.
9. The resumers of lands dedicated to Gods and Brāhmans, become dwellers in arid wastes devoid of water, and dry hollows in trees, and are born as black serpents.
10. All the gifts of former kings are productive of virtue, wealth, and fame,—how can he, who claims the name of goodness, resume them which are to them but as emblems of vomited food?
11. Sovereignty is like unto clouds impelled by wind, (*i. e.* inconstant), worldly pleasures are sweet only for the moment, the life of man is but a drop of water at the point of a blade of grass; virtue verily is the only great friend for translation to a future world.

By the Kayastha Thakkura S'ri—



*A Metrical Version of the opening Stanzas of the Prithirāj Rāsau, with a critical commentary.—By F. S. GROWSE, M. A., B. C. S.*

“Manuscripts are in general grossly incorrect; and a familiarity with the metre will frequently assist the reader in restoring the text where it has been corrupted.”

*Colebrook, on Sanskrit and Prakrit Poetry.*

The following version of the opening Stanzas of Chand's great poem does not lay claim to any poetical merit. It simply professes to be a close and accurate reproduction of the original, so far as the difficulties of the text allow, in readable and intelligible English. Occasionally the exigencies of rhyme and metre have necessitated some slight expansion or curtailment; and in a few passages the *exact* turn of expression has been deliberately abandoned, either because there was a doubt about the reading, and therefore a little vagueness was preferable to what might turn out to be mistaken accuracy, or because a rigid adherence to Hindi style would have had a forced and unnatural effect, and to that extent have misrepresented the original. But throughout, the translation is line for line, not unfrequently word for word; the connection of ideas, not always easy to trace, has been carefully studied and faithfully preserved; and not a word *materially* affecting the sense has anywhere been either omitted or inserted.

These, it must be admitted, are rather the merits which should characterize a prose translation; and as a literal rendering of these very same stanzas has already appeared in the last volume of the Society's Journal, the present version might be hastily condemned as a mere work of super-erogation. The rendering to which I refer is therefore appended in a running foot-note; the words to which exception is taken as being (in my opinion) specially incorrect being printed in italics; and the text is inserted above, in order that the correspondence, or otherwise, of the one with the other may be rapidly apprehended. For other reasons it was desirable that such comparison should be made; though it may be added that the present metrical version would never have been attempted but for the opening sentence of the preface to the prose translation, which fathers upon me a retraction which I am not conscious of having made.

In my reprint of the text I have for the sake of the metre corrected the copyist's errors of spelling in many places where without such correction the lines could not possibly be scanned. It is incredible that Chand himself was guilty of these false quantities, since in one of the verses which I translate, it will be seen that he specially prides himself upon his accurate knowledge and observance of the laws of prosody. The alterations, which affect the sense, are very few in number, and are all fully explained and defended in my running commentary.



## I. प्रथम साटक बंद ।

आदि प्रनम्य नम्य गुरुयं वानीय वंदे पयं ।

सिद्धं धारन धारयं वसुमती लक्ष्मी चरनाश्रयं ॥

तमगुण तिष्ठति ईस दुष्ट दहनं सुरनाथ सिद्धिप्रयं ।

थिर चर जंगम जीव चंद नमयं सर्वस वरदामयं ॥ १ ॥

- I. Bowing low before my master, I the queen of speech entreat,  
And the world-supporting serpent and great Vishnu's holy feet.  
Then the perfect, sin-consuming god of gods that awful power,  
Life of man and life of nature, I the poet Chand adore.

Thus after due mention of his Guru, the poet addresses his invocation to Sarasvati, Sesh-nag, Vishnu, and Mahādeva, the first of these four divinities being clearly indicated by her title of Vāni. Half of the second line is difficult, but if translated literally, would I believe stand thus, "The supporter of the weight of creation, that is, of the world," meaning Sesh-nág. It can scarcely be doubted that *sishtam* is a corruption of *srishtam*, 'created,' not of *sreshtham*, 'the best' or 'highest;' for the substitution of *i* for *ri* is quite according to rule, as in *siála*, 'a jackal' for *srigála*, but I know no instance of the substitution of *i* for *re* or *t* for *th*. In the third line, the words *tama-guna* indicate Mahadeva, who is lord not 'of vice and of virtue,' but of the quality (*gun*) of darkness (*tama*). In *siddhi-srayam* the first part of the compound may mean 'success,' or may allude to the eight Siddhis, Rasollása, Tripti, Sámya, Tulyatá, Visoká, &c., the constituents of perfection; and adopting the latter view I translate by 'perfect.' In the fourth line, I have corrected the unmeaning word *Chandana-mayam* by the simple process of division into *Chanda namayam*, 'I Chand reverence.' In the first half of the line, *achara* should probably be read for *chara*; for certainly the intention is to represent the god as the life both of sentient and insentient creation.

## II. वयूया बंद ।

प्रथम सुसंगल मूल श्रुति वीथ ॥

स्मृतिसत्य जल सिंचय ॥

## I. The prose translation:

"First reverently bowing, bowing, the poet adores the feet of the *Gurus*. Taking refuge at the feet of the *highest*, the *afforder of support*, the husband of the opulent Lachhi; who stands the lord of vice and of virtue, consuming the wicked, the lord of heaven, blessing with success; who is as sandal-wood to the life of living beings moving on the earth, lord of all, bestower of blessings."

## II. The prose translation:

"First the very auspicious root is to be celebrated. Irrigated with the water of the truth of tradition, religion like a fair tree with one trunk sprung up, with thrice six branches rejoicing the three worlds. Leaves of various colours, leaves like mouths there were. Colour of flowers and weight of fruit it had, speech unfailing, princely, rejoicing with fragrance the sight and touch, *ásan* tree of hope to the parrot-like poet."



सुतश्च एक धर भ्रमं उभयो ॥  
 विषट् साय रमिय विपर ॥  
 वरन पत्त मृष पत्त सुभयो ॥  
 कुसुम रंग भारद् सुफल ॥  
 उकति अलं व असौर ॥  
 रस दरसन पारस रमिय ॥  
 आस असन कवि कीर ॥ २ ॥

II. From the seed of Revelation,  
 Watered by Law divine,  
 Sprang with thrice six spreading branches  
 Faith, a straight and goodly pine,  
 Each leaf a lettered sign.  
 Rich in fruit of lovely colour  
 And honied flowers of song,  
 Sweet to taste, to see and handle,  
 For the poets, parrot throng.

In the first line I have divided the unknown word *Sruta vīya* into *Sruti vīya*; *Sruti* being the highest Revelation as distinct from *Smriti*, mentioned in the next line, divine Law or Tradition. *Vīya*, if allowed to stand, is of course 'seed;' but it might be better to read *boya*, 'to be sown;' the difference between the two words in Nāgari writing being almost imperceptible. The fifth line is probably corrupt; but *baran* certainly means not 'colour,' but 'letters of the alphabet;' which, according to the *Mimāṃsa* Philosophy are supposed to be eternal and immutable. In line 7 *amīr* is not the familiar Persian word meaning 'a noble,' but is for *amrit*, 'nectar.' In the last line the word *ās* is a little doubtful, but *āsan* unquestionably means simply 'eating.'

### III. इष्ये ।

प्रथम कीय संगल प्रमान । निगम संपूजय वेद धुर ॥  
 विगुण साय चिह्नं चक्र । वरन लगो सु पत्त हर ॥  
 त्वचा धर्म उदरिय । सत्त फूलो जु चव दिशि ॥  
 कर्म सुफल उदयत्त । अमृत सुमृत मध्य वसि ॥

### III. The prose translation :

"First having indeed proclaimed a blessing, having honoured the sacred writings, whose beginning is the Veda, whose three-fold branches in all four directions are possessed of colour and leaves like letters. Religion, having sprouted out through the bark, flowered fair in all four directions: its fruit, virtuous deeds springing out immortal, dwelling amidst mortals; firm as counsel of kings, or as the earth; the wind shakes it not, giving to life the flavour of nectar, the kali-yug affixes no stain to it, containing truth, wisdom, and perpetual freshness."



दुजै न वाय नृप नोति धृति । साद अमृत जीवन करिय ॥  
कलि जाय न लगे कलंक इहि । सन सन आढति धरिय ॥ १ ॥

- III. The Vedic Scriptures, God's best gift,  
First claim respect profound,  
With three-fold branches spreading wide,  
Each leaf a lettered sound ;  
Its bark religion, whence the bud  
Of virtue forced its birth,  
Ripening to fruit of noble deeds,  
Heaven's bliss midst men on earth.  
Who tastes, unshaken by the blast,  
Firm as king's counsel, stays,  
Aye growing to more perfect good,  
Unsoiled by these foul days.

I have headed these stanzas 'Chhappai,' that being a more correct designation of them than 'Kabitt.' In the first line the word *pramān* is precisely identical in meaning with *nigam* in the following line ; both are synonymes of the Veda. A strictly literal translation would be "first having taken the blessed scriptures, reverence them, the divine oracles, the original Veda." It will be noticed that the poet keeps hovering round the same idea, which he repeats in three different metres. Line four here corresponds precisely with line five of the Vathūa, and as there *baran* must be translated 'A letter of the alphabet.' In the last line occurs the word *ārhati*, which I translate 'growing,' taking it to be formed from the root *ridh*. A Mathurā Pandit explained it by *sambandh*, 'connection ;' in which sense chiefly as a business term, for dealings with an *arhiya*, or 'broker,' the word is still very common.

#### IV. इष्टे ।

भुगति भूमि किय क्यार । वेद सिंचिय जल पूरन ॥  
बोय सुवय लय मध्य । ज्ञान अकूर सजूरन ॥  
त्रिगुण साध संप्रदिय । नाम बड पत रत्न छिति ॥  
सुकरम सुमन फुल्लयो । भुगति पक्का द्रव संगति ॥  
दुज सुमन डमियबुध पक्क रस । बट विलास गुन वसरिय ॥  
तख इक साध वय लाक महि । अजय विजय गुन विसरिय ॥ ४ ॥

#### IV. The prose translation :

"Taking possession of the earth like a garden-plot ; irrigating it with the fulness of the Vedas with water ; placing in it good seed, upsprung the shoot of knowledge, combining branches of three qualities, with leaves of many names, red as earth. It flowered with good deeds and good thoughts, complete deliverance, union of substances. The twice-born of pure mind have experienced its flavour of perfect wisdom, a banian tree of delight, spreading abroad virtues ; the branches of this excellent tree in the three worlds, unconquered, victorious, diffusing virtues."



IV. The world, a pleasant garden-plot,  
 \*Watered with Vedic lore,  
 From good seed cast into its midst  
 The plant of wisdom bore.  
 Three great boughs spread, and the earth grew glad  
 At the leaves' new melody,  
 While flowers of virtue swelled to fruit  
 Of immortality.  
 The bird-like sage quaffed the sweet juice  
 Of this exquisite marvellous tree,  
 With its single stem and its far-spreading boughs  
 Full of glory and victory.

In the first quatrain, the only word of any difficulty is *bhugati*, which I take to be equivalent to *bhog*. In the second occurs the phrase *ratt chhiti*. Here *ratt* is simply the past participle of the verb *rang*, meaning not 'red,' nor even 'coloured,' but in its secondary sense 'affected by love,' like the more common *mohit*, 'charmed.' The two words are parenthetical, and the most literal translation of them possible is 'earth is charmed.' The three boughs, to which such frequent reference is made, can scarcely be taken to mean the three qualities *sattva*, *rajas*, and *tamas*, but indicate rather that the influence of religion extends over the three worlds of earth, heaven, and hell. In line seven, I have altered *susan*, apparently a mere misprint, to *suman*, not 'good thoughts,' but 'a flower.' In the ninth line, *duja* might mean 'twice-born;' but it seems a more appropriate carrying out of the allegory to take it in its other well-known sense of 'a bird.'

इंद भुजंगप्रयात ।

- प्रथमं भुजंगो सुधारी यद्वनं ।  
 जिनै नाम एकं अनेकं कद्वनं ॥  
 दुती लवभयं देवतं जीवतेसं ।  
 जिनै विश्व राख्यो बली मंत्र सेसं ॥  
 5. चवं वेद वंभं हरी किति भाषी ।  
 जिनै भ्रम साध्रम संसार साषी ॥  
 हती भारती व्यास भारथ्य भाष्यो ।  
 जिनै उत पारथ्य सारथ्य साष्यो ॥  
 चवं सुष्पदेवं परोपत पायं ।  
 10. जिनै उद्ध्ये मर्व कुरु वंस रायं ॥  
 नरं रूप पंचम श्रीहर्ष सारं ।  
 नलैराय कंठं दिनै शुद्ध चारं ॥  
 बटं कालिदासं सुभाषा सुवदं ।  
 जिनै वम वानी सुवानी सुवदं ॥





15. कियौ कालिका मुण्य वामं सुसुद्धं ।  
जिनै सेतु बंधौ तिभोजप्रबंधं ॥  
सतं दंडमाली उलाली कवित्तं ।  
जिनै बुद्धि तारंग गंगा सरित्तं ॥  
जयदेव अठठं कवी कव्वि रायं ।
20. जिनै केवलं कित्ति गोविन्द गायं ॥  
गुरुं सब्ब कव्वो लल्लं चंद कव्वो ।  
जिनै दर्शयं देवि सा अंग हव्वो ॥  
कवी कित्ति कित्तो उक्कतो सुदिग्घो ।
24. तिनं की उचिछो कवी चंद भण्णो ॥
- V. First reverence to the serpent-king, who ordereth all things well,  
Whose name is told ways manifold, though one, unchangeable.  
Next be adored the Sovereign Lord, the god of quick and dead,  
Who by strong spells set fast the world on the great serpent's  
head.
5. In the four Vedas' holy texts is Hari's glory shewn,  
A witness to eternal truth, where only sin was known.  
Be Vyāsa third, from whom was heard the tale of the Great War,  
Where Krishna, first of charioteers, drove Arjun's sounding car.  
Fourth, Sukadev, who at the feet of king Parikshit stood,
10. And wrought salvation for the whole of Kuru's lordly brood.  
Śrī Harsha, fifth, pre-eminent in arts of poesy,  
Who on king Nala's neck let fall the wreath of victory.  
Sixth Kālidās, in eloquence beyond all rivals great,  
Whose voice the heavenly Queen of Speech vouchsafed to  
modulate.
15. Upon whose lips great Kālī's self thought it no shame to dwell,  
The while he framed in deathless verse King Bhoja's Chronicle.

V. The prose translation :

First be the well-adorned Bhujangi taken, whose name this one is spoken in many ways. Second be taken the god, the lord of life, who placed the universe by powerful spells on Sesh-nāg. In the four Vedas by the Brahmans the glory of Hari is spoken, of whose virtue this unvirtuous world is witness. Third the Bhārati Vyāsa spake the Bhārath, who bore witness to the more than human charioteer. Fourth Sukadeva at the feet of Parikhit, who extolled all the kings of the race of Kuru. Fifth .....who placed a six fold necklace on the neck of king Nala. Sixth Kālidāsa, fair of speech, fair of wit, whose speech is that of a poet, a master-poet, fair-speaking, was made the pure fragrance of the mouth of Kālī, who firmly bound the dyke of three-fold enjoyment. Seventh, Danda-Mālī's charming poem, the wave of whose wit is as the stream of Gangā. Jayadeva, eighth, poet, king of poets, who only made the song of Govinda. Take all these poets as thy spiritual guide, poet Chand, whose body is as a sacrifice inspired by Devi. The poets who have uttered praises and excellent speech, of them poet Chand has spoken highly."



- Be seventh in place the jocund grace of Danda-Máli's theme,  
Sweeping along, full, deep and strong, like Ganga's mighty stream.  
Eighth Jayadeva, bard of bards, most worthy that high name,  
20. Whose sole delight to tell aright the great god Gobind's fame.  
Thus each great name of elder fame I the bard Chand invoke ;  
For as the present god inspired, those loving servants spoke.  
In humble phrase I dare to praise the deeds of one and all,  
24. Who can but gather up the crumbs that from their table fall.

If this passage is genuine, and there seems no reason to doubt the fact, it is of some value in the history of Sanskrit literature as tending to determine the date of the two poets Śrī Harsha and Jayadeva. Dr. Bühler assigns the former to the middle of the twelfth century, relying chiefly on the authority of Rājā Sekhara, a Jain writer of about the year 1350 A. D. This view, which is by no means in accordance with ordinary Hindu tradition, has been ably combated in the pages of the Indian Antiquary, and must now be considered as finally refuted. For though Chand may not have been a very profound critic of Sanskrit style, and may have been as regardless of chronological precision as most of his countrymen, still it is impossible that he should have committed the blunder of referring to remote antiquity a writer, who—according to Dr. Bühler's hypothesis—would have been all but, if not quite, his contemporary. Similarly in Jayadeva's case, the desire of European scholars to prune down the exaggerated figures, in which Hindus are prone to indulge, has led to error in the opposite direction. Professor Wilson concludes him to have been a disciple of the great religious reformer Rāmānand, who flourished in the thirteenth or fourteenth century. This connection, so far as I can ascertain, is not warranted by any text in the Bhakta Málā, the recognized authority for the lives of the Vaishnava saints, and is totally disproved by the fact now brought to light that Jayadeva is mentioned by name by Chand, who wrote some hundred years before the time of Rāmānand even.\*

The metre *Bhujanga prayāt* is a series of rhyming couplets, each line comprising four of the foot called in Sanskrit prosody *Ya-gan*, i. e. one short followed by two long syllables. In the twenty-four lines, as originally printed, there are as many as eighteen false quantities; but the defect in every instance is obviously the result of mere carelessness on the part of the transcriber, and has been rectified by some one of the three simple and recognized prosodiocal expedients, viz., the introduction of an anusvāra, the reduplication of a consonant, or the change of the quantity of a vowel. In the first line, the word *Bhujangi* contains an allusion to the name of the

\* I have stated the argument at greater length in two letters on the subject which have appeared in the Indian Antiquary.



metre, which it is quite impossible to preserve in a translation, but primarily it denotes the serpent God, Sesh-nāg; *bhujanga* being a common name for a serpent. *Sudhāri*, like every other word with the same termination, has not a passive but an active signification, and means 'the good arranger'; as *mantra-dhāri* means 'a layer down of counsel,' and *rās-dhāri* 'a composer of dances.' It will be observed that the poet is giving a brief catalogue of all the great authors of earlier date, and places at their head the god Sesh-nāg, the first artificer or *ποιητής* of the universe. He then passes on to the Vedas, which he represents as directly inspired by Vishnu, and thence to the Mahā-bhārat of Vyāsa, the Śrī-Bhāgavat of Suka-deva, and so on, in each case either mentioning by name or describing the author's principal work and eulogizing his genius. Thus in the fifth line we are forbidden by the context from taking the obscure word *bambham* to represent the 'Brahmans' as the authors of the Veda, which has already been distinctly ascribed to Vishnu himself. I would rather consider it as a corruption of *babhru*, a title of that god, and couple it with the word Hari which immediately follows it.

In line eight, *utta* would seem to be an abbreviation for *uttam*, 'the best;' while Pārathth is simply the Hindi form of the Sanskrit Pārtha, meaning 'the son of Prithā,' a very familiar name of Arjun, the great hero of the Mahā-bhārat. In lines nine and ten, the reference is to the Śrī Bhāgavat, which was recited by Sukadeva to king Parikshit when at the point of death, as the best means for procuring the 'salvation' (*uddhāra*) of his soul.

In the following couplet, I have corrected the unmeaning word *shaddha* to *suddha*. The allusion is to Sri Harsha's famous poem, the Naishadha, which narrates in twenty books the adventures of the hero Nala, king of Nishadha, and concludes with the description of the Svayam-vara, where Damayanti in token that she had selected him for her husband 'dropped upon his neck the wreath of flowers.'

Lines thirteen to sixteen are eulogistic of the great poet Kālidāsa, to whom Chand ascribes, not with perfect accuracy, the composition of the Bhoja-prabandha, a work in mixed verse and prose.\* A literal translation of line fourteen would be "whose voice Sarasvati made a charming voice," *vāg* being not 'speech' but the 'queen of speech;' and *vāni* not 'a poet' but 'voice.' In line fifteen, *vāsam* is not 'fragrance,' but 'an abode;' and in line sixteen the words *setu bandhyau* mean simply 'composed,' having been selected with alliterative allusion to the *prabandha* which forms part of the title of the work under mention. It may be noted upon lines seventeen and eighteen, that Danda-māli's great work, the Dasa-Ku-

\* The prose frame-work is known to have been composed by Ballāla Misra, but many of the poetical extracts may with great probability be ascribed to Kālidāsa.



marā-Charita, has still less claim than the Bhoja-prabandha to be considered a poem; since unlike most Sanskrit literature it is entirely in prose. The style, however, is sufficiently elaborate to make it ordinarily included among the Kāvyaas.

In line twenty, an alteration required by the metre is equally essential for the sense: *kittī*, with the last syllable long, being when so spelt the past participle of the word *karnā*, 'to make,' must be corrected to *kitti*, with the last syllable short, a corruption of *kirti*, 'fame.' *Gāyam* also should be translated as the verb 'sung,' rather than as equivalent to *gīta*, 'a song.'

In the twenty-second line, *habbi* cannot possibly be taken as a derivative from the root *hu*, 'to sacrifice;' it is far more natural to connect it with *hāva*, 'love and dalliance.' In the last line, I take *uchishti* as a substitute for *uchchhīṣhta*, corresponding to the Hindi *jhuthā*, 'the fragments of a feast.'

## VI. दोहा ।

उचिष्ट चंद इंदु वयन । सुनत सु जंपिय नारि ।  
तन पवित्र पावन कविय । उक्ति अनूठ उधारि ॥ ६ ॥

VI. Hearing Chand rate his art so low,  
His lovely consort cries:  
O pure and all unblemished bard,  
Skilled in rare harmonies.

Here *uchisht* must of course be taken, as at the end of the last stanza, to denote something utterly low and vile. In the third line *tan pavitra* is rather 'pure of body' than 'purifier of the body,' and *pāvan*, with precisely the same meaning, is added simply for the sake of emphasis.

## VII. इष्टे ।

कहे कंति मम कंत । तन पावन वड कविय ।  
तंत मंत उचार । देवि दरसिय मभि ह्विय ॥  
तंत नीर उग्रंत । रंग राजन सुष दार्य ।  
बाल केल प्रत्यंग । सुरनि उडरि कवितार्य ॥

VI. The prose translation:

"The speech in verse of Chand, *excellent*, hearing him utter, his wife says, *Purifier of the body*, O poet, uttering excellent speech."

VII. The prose translation:

"Saith the wife to her husband: *Purifier of offspring*, great poet, uttering spells and charms, like an oblation offered to *Devi*, hero of spells, very terrible, giving pleasure to kings by thy poetry: the childish sports one by one of the gods having extolled in thy poems, having uttered unchecked speech, from which to me comes wisdom, that word which is the visible form of *Brahm*, why should not the best of poets speak it?"



अवलंब उकति उचार करि । जिहित मोहि कोविद रचे ॥  
समब्रह्मरूप या सबद कहुं । कोउ उचिष्ट कवियन कहै ॥ ७ ॥

- VII. Nay, good my Lord, thus quoth his spouse,  
Great bard, unblemished elf,  
Whose prayers and spells have power to win  
The love of Heaven itself,  
Hierophant of mystic lore,  
Charm of the courtly throng,  
Like to a child in untaught play  
Lispings divinest song ;  
In faith pronounce one holy name  
(For faith and love make wise),  
'Tis Brahma's self ; no dregs of eld  
Deem then thy melodies.

There can be no question as to the meaning which the first line is intended to convey, but it seems impossible grammatically to extract that meaning from it, if the word *sama* be retained. I have altered it to *mama*. In the second line also, I have made a change by substituting *tan* for *tant* ; it now corresponds precisely with the third line of the preceding *doha* ; and a repetition of the kind, after a change of metre, is a very favorite artifice with Hindi poets. The erroneous reading of *tant* is due to its occurring at the commencement of the very next line, where it caught the copyist's eye. In the third quatrain, I have introduced two emendations ; first by combining *ko* and *vid* into one word *kovid*, 'wise ;' and secondly, by joining *kabiya* with the following negative, and so converting it into the plural form *kabiyan*. The words *habbiya* and *uchisht* have already been commented upon.

#### VIII. कथै । चंद वाक्यं ।

सम बनिता वर वंदि । चंद जंपिय कोमल कल ।  
सबद ब्रह्म इह सति । अपर पावन कहि अमल ॥  
जिहतत सबद नहि रूप । रेप अकार ब्रह्म नहि ।  
अकल अगाध अपार । पार पाव न बयपर महि ॥  
तिहि सबद ब्रह्म रचना करै । गुरु प्रसाद सरमें प्रसन्न ।  
जद्यपि सु उकति चुकौं जुगति । तो कमलवदनि कवितह हसन ॥ ८ ॥

#### VIII. The prose translation :

"To his wife saith the bard O Chand, muttering soft and low, that true word of Brahm, *purifier of all others*, itself pure, that word which has no form, stroke, letter, or colour, *unshaken*, unfathomable, boundless, *purifier of all things* in the three worlds, that word of Brahma let me expound, the *glory of the Gurus*, pleasing to Sarasvati, if in the arrangement of my phrases I should succeed, it will be pleasing to thee, O lotus-faced one."



With reverence to his dearest spouse  
 Quoth Chand in accents mild :  
 That holy name of God most high,  
 Pure, infinite, undefiled,  
 Beyond the compass of all shape,  
 Form, stroke, or lettered sign,  
 Fathomless, indivisible,  
 That no sphere can confine,  
 Hymned I that name, by my lord's help  
 And Sarasvati's grace,  
 Jeers still would mock my faltering style,  
 O Queen of the lotus face.

In the first line, I have allowed the word *sam* to stand, thinking it possible that it might be intended to represent the Sanskrit *swa*. The combination *barbandi* would seem to be a misprint; though it is impossible to say, as it is omitted altogether from the prose translation; obviously it consists of two distinct words *bar* 'excellent' and *bandi*, 'reverencing.' In line seven, *akal* is not 'unshaken,' but 'without parts,' that is 'indivisible.' The next line literally translated would be 'that can find no limit in the three worlds;' पावन being divided into पाव न. In the eighth line, *prasād* is not in opposition to *rachnā*, but the words are parenthetical, and the construction expressed in full would be *Guruke prasād se, aur yadi Sarasvati prasann ho*. In the eleventh line, for *chukaun* with *u* short, meaning 'to complete,' I think it would be better to read the same word with *ū* long, meaning 'to fail.'

#### IX. इष्य । चंद स्त्री वाक्यं ।

तुम वानो वर वंद । नाग देखंत विमल मति ॥  
 चंद भंग गुन रहित । कंठ कौमार काव्य छत ॥  
 बुधितरंग सम गंग । उकति उचार अमिय कल ॥  
 सुनर सुनत विहसंत । संत जनु वस्य करन बल ॥  
 अवतार भय प्रथिराज पड । राज सुप तिन समलुहहि ॥  
 बीराधिबोर सामंत सब । तिन सु गल्ह अच्छो कहहि ॥ ९ ॥

IX. O reverent and most pure-souled bard,  
 Versed in all rhythmic law,

#### IX. The prose translation :

"Thou art the poet, the excellent bard, gazing on the heavens with unclouded intellect, skilful in the arrangement of metres, having made the song of the peacock-youth. The wave of thy wit is like Gangā, uttering speech immortal, soft, good men hearing it are rejoiced, it subdues like a spell of might. The incarnation king Prithirāj the lord, who maintained the happiness of his kingdom, hero, chief of heroes, and all his paladins, of them speak a good word."



Who lisped in numbers as a babe,  
 Numbers that knew no flaw,  
 Like Gangā's stream, on pours thy song  
 In rich mellifluous flood,  
 A spell of might that all confess,  
 But most the wise and good ;  
 The incarnate god, who rules the world,  
 King Prithirāj the Great,  
 Of lordly chieftains lordlier lord,  
 Be it thine to celebrate.

The word *nág* which occurs in the second line, is one that bears many meanings, but the context shews that in this passage it must be interpreted in its technical sense of 'the art of prosody.' A literal rendering of the next two lines would be 'whose verses are without any faults who in childhood made poems.' I fail to discover any possible allusion to the Kumāra-sambhava. In the sixth line *amiya kal* are 'sweet strains,' without any reference to 'immortality.'

X. छप्पै । चंद वाक्य ।

गजगवनी प्रति चंद । छंद कोमल उचारिय ॥  
 मनहरनी रसवेली । सुरन सागर रस धारिय ॥  
 बंक नयन वयवाल । प्रानवसभ सुखदाईय ॥  
 गरु अगुन निगुन यद्वनि । गवरिपूजा फल पादय ॥  
 भर आदि अंत कविता जितै । तिन अनंत गति मति कहिय ॥  
 अनेक ग्रंथ तिन वरन वत । यों उचित मतिमें लहिय ॥ १० ॥

X. Unto his fair and stately dame

Quoth Chand in loving wise :  
 Dear charmer, clinging vine of love,  
 Foretaste of Paradise,  
 With girlish eyes of witching glance,  
 My queen, my soul's delight,  
 Noting all faults but knowing none,  
 Heaven's rich-dowered favourite ;  
 List while I tell in faltering tones  
 How infinite a throng,

X. The prose translation :

"To her of the elephant gait, Chand singing a pleasant rhyme said, Ravisher of the soul, tendril of enjoyment, possessing the fragrance of the ocean of the gods, thou of the glancing eye, in the flower of thy youth, beloved of my soul, giver of bliss, wife, free from all evil qualities, thou who hast obtained the fruit of the worship of Gauri ; as many poems as there have been from first to last, consider how endless a string there is of them, the description of this matter is in many books, thus having taken in the best counsel."



Of diverse talents, diverse theme,  
Are the great lords of song.

In this passage the only line of any difficulty is the seventh, which I translate 'faultless, observant of faults;' omitting the first word *garu*, which may either represent *garv*, 'pride,' or be a mis-reading for *guru*. A literal rendering of the last quatrain would be 'from first to last what poems there have been, their endless (varieties of) style and theme I tell. Countless are the books: now gather from my poor wit this attempt to describe them.'

### XI. बंद पदरी ।

प्रणम्य प्रथम मम आदि देव ।  
ॐकार मवद जिन करि अखेव ॥  
निरकार मध्य साकार कोन ।  
मनसा विलास सह फल फलीन ॥  
चयगुनह तेज चयपुर निवास ।  
सुर सुरग भूमि नर नाग भास ॥  
फुनि ब्रह्मरूप ब्रह्मा उचारि ।  
कथि चतुर वेद प्रभु तत सार ।  
वरनयौ आदि करता अलेष ।  
गुन रहित गुननि नह रूप रेष ॥

- XI. First I adore the one primeval Lord,  
Who breathed the unutterable, eternal word;  
Who out of formless chaos formed the earth,  
And all creation, as he willed, had birth.  
Through the three spheres his three-fold glory sped.  
Fiends, gods and men—earth, heaven and hell o'erspread.  
Then the supreme, in Brahma's form revealed,  
By the four Vedas heaven's closed gate unsealed.  
How sing the great creator, uncreate,  
Passionless, formless, aye unchanged in state:

And so on for the remainder of a long paragraph; which, as it contains nothing of special difficulty, has already been adequately translated, and therefore need not be repeated. It does not advance very far in the promised poetical catalogue, for after extolling the divine author of the

### XI. The prose translation:

"First reverencing my first of gods, who uttered the imperishable word Om, who made the formed out of the formless, the will of his mind blossomed and bore fruit, the sheen of the three qualities, inhabiting the three worlds, shining on gods in heaven, men on earth, serpents in hell. Then in the poem of Brahma leaving the Brahma-egg, the lord, the essence of truth, said the four Vedas, the creator uttered them unwritten, without qualities, having neither form nor line.





Vedas, it just mentions by name the Purānas, the Rāmāyana and the five Mahā-kāvya; when the poet is stopped by his wife, who desires to have the Purānas enumerated more in detail. In the seventh line, I prefer the alternative reading *Brāhmā uchāri* to *Brahmānda chāri*, which the editor has adopted; and I translate 'then spake Brahma, the visible form of Brahm,' which appears to me a very simple and intelligible form of expression.

Before concluding this article, it may be interesting to adduce a specimen of a genuine native commentary on Chand : accordingly, I append a paraphrase of the first four lines of invocation, written by Pandit Mākhan Misr, a Sārasvat Brāhman, resident in Mathurā, who has the largest library of Sanskrit MSS., and is one of the best-read scholars in that city of Sanskritists.

शटक ।

आदि कहिये प्रथम नम्य कहिय नमस्कार करवे लाइक जो गुरयं गुरु तिनै प्रणम्य  
नमस्कार करके पय कहिये जल सरोकी निर्मल अथवा दूध सरोकी स्नेत ऐसी जो  
बानीय नाम सरस्वती ताय नमस्कार करुं कैसे गुरु हैं शिष्ट कहिये परंपरामरयादानके  
राखनवारे हैं फिर कैसे हैं धारन कहिये ध्यानादिक जो अष्टांगयोग हैं ताके धारयं  
कहिये धारण करवे वारे हैं अरु पशुपती कहिये महादेवजी अरु लक्ष्मी कहिये लक्ष्मी  
स्वामी जो विष्णु इन दोनों के जो चरण हैं तेहें आश्रय जिनकूं ऐसे गुरुनकूं फिर  
कैसे गुरु हैं तमगुन जो तमोगुण हे सो न तिष्ठति कहिये नहीं बिनके विषे स्थित है  
अरु ईश कहिये समर्थ हैं अरु दुष्ट कहिये पाप ताकूं दहन कहिये अग्नि सरोके जराय-  
वेवारे हैं अरु सुरनाथ जो इंद्र ताकी जो सिद्धी कहिये संपत्ति ताके अथ कहिये  
आश्रय हैं अर्थात् जो कोई गुरुनको सेवा करे हे ताइ इन्द्र करदेइ हैं थावर कहिये  
हृत्तादिक अरु जंगम कहिये मनुष्यादिक जो जोवमात्र तिनकूं चंदनमय नाम चंदन जैसे  
शीतल हैं सर्वेश कहिये सबके स्वामी हैं वरद कहिये वरक देवेवारे हैं अभय कहिये  
निर्भय ह ॥ १ ॥

The above is a good illustration of the extreme difficulty which really learned Hindus, whether they come from the east or the west of India, find at the present day in understanding their own vernacular in its earliest form. Their suggestions as to the train of ideas, traditional usage, &c., are often valuable; but their etymological explanation of particular words is frequently of the wildest and always requires confirmation. Hence the English editor of Chand must in the main depend on his own resources and stand or fall by himself.



*The Initial Coinage of Bengal under the early Muhammadan Conquerors.*  
*Part II.—By E. THOMAS, F. R. S.*

(Continued from Journal, Vol. XXXVI, 1867, p. 73.)

The discovery of an undisturbed hoard of no less than 13,500 coins in Koch Bihár, inhumed some five centuries since, recently claimed attention both from the number and importance of its representative specimens, which so effectively illustrated the history of the kingdom of Bengal for a consecutive period of some 107 years.\* The earliest date thus accorded towards the purely Initial Coinage of the country under its newly-installed Muslim administrators did not reach higher than the reign of the Empress Raziyah, A.H. 634-637 (A.D. 1236-1239), or more than 34 years after the first entry of the adventurous *Khilji* and *Turki* troops into the recognized Hindú capital of the lower Ganges.† A still more recent discovery of a comparatively poor man's *cache*, in the fort of Bihár,‡ elucidates an earlier chapter of the local annals: and though the contents of the earthen vessel in this case are limited in number to a total of 37 pieces, and restricted in their dates to a term of 13 years, they, in some respects, compete advantageously with the previously-recovered unexampled store, in the value of their contributions to the obscure records of the Gangetic Delta, and in priority of date bring us more than 20 years nearer to the first occupation of Bengal by Muhammad Bakhtiyár *Khiljî* in 600 A.H. As in the larger and almost regal treasure trove of Koch Bihár, the specimens in the present instance prove to be essentially of home or indigenous fabric. With the exception of a single northern piece of the supreme *Sultân* of India, they are one and all the produce of the mints of Bengal proper; and mark with singular fidelity the varied incidents of the alternate rise and fall of the provincial governors during the unsettled relations existing between suzerain and vassal from A.H. 614 to 627, when Altamsh came into real and effectual possession of the south-eastern portion of his Empire.

\* Journ. R. A. S. (N.S.) Vol. II., 1866, p. 145. Reprinted in the Journal of the Asiatic Society of Bengal, vol. XXXVI, 1867, p. 1.

† The name of Nuddea, नवद्वीप, *Navadvîpa*, the "new island" (converted into نودیة by the Muslims), would seem to imply a southerly movement, in concert with the silt of the Ganges, of the seat of Government down to the comparatively modern occupation of this site, on the abandonment of the successive traditional capitals of earlier dynasties.

‡ I have no information as to the exact circumstances of the discovery of this small hoard, beyond the general intimation that it was secured by Mr. A. M. Broadley, in or near the Fort of Bihár. The coins have now become the property of Colonel Guthrie, who had already contributed the materials for my earlier notice of the Initial Coinage of Bengal.



One of the most instructive facts disclosed by these few pieces is, that the rich and comparatively undisturbed territory of Bengal felt the want of a supply of *silver* money long before a similar demand arose in the harassed provinces of the North-West. The southern coins date, as far as can be seen, some nine years prior to Altamsh's earliest effort at a silver coinage in his northern dominions; and even Raziyah's silver money of deferred date bears every token of exclusive manufacture in the subordinate Lak'hnauti mint.

I have already quoted the testimony of Minháj i Siráj, to the effect, that on the first conquest of Bengal by the Muslims, they found no metallic or other circulating media of exchange except that supplied by *cowries*;\* even the compromise of the mixed silver and copper *jitals* of the various Hindú dynasties of the central Rájput tribes was unknown in the sea-board marts of the south.

The chronicles of the proximate kingdom of Orísá, whose boundaries touched, if they did not often trench, upon the ancient kingdom of Gaur,† explain how so infinitesimal and largely distributed a currency was able to supply the wants of so rich and essentially commercial a population. It would appear, from the official records preserved in the Temple at Púri, that although there was no silver money in use, gold in convenient weights, if not in the form of absolute coin,‡ was freely interchangeable with the more bulky heaps of cowries. In these same official *palm-leaf* documents we find the powerful king of Orísá, Anang Bhím Deo (A.D. 1174-1201), describing the geographical limits of his kingdom, specifying, with close exactitude, its now *proved* superficial area (39,407 square miles); and adding that, as the revenues of his predecessors of the Kesari line had amounted, with a more limited extent of territory, to 15,00,000 *marhs* of gold, so his own added boundaries had raised the State income to 35,00,000 *marhs*. Mr. Stirling (our most trusted revenue authority), relying upon still-extant local

\* J.R.A.S. (N. S.) II., p. 148. See also Hamilton's *Hindustan*, i., 40.

† Mr. Stirling says, under the Ganga Vansa line, for a period of nearly four centuries (from A.D. 1132), the boundaries of the rāj of Orísá may be stated as follows: . . . .  
 "North, a line drawn from the Tribeni, or Triveni, Ghát above Húglí, through Bishnupúr, to the frontier of Patkúm: East, the river Húglí and the sea." As. Res. xv. 164. Hunter i., 280. "To the north of the mouth of the Saraswatí lies the broad and high Tribeni Ghát, a magnificent flight of steps, said to have been built by Mukund Deo, the last Gajpatí of Orísá." Blochmann, As. Soc. Bengal, 1870, p. 282.

‡ On the above occasion, likewise, a new coin and seal were struck by the Rájá's orders, with the titles which are used to this day by the Khurdah Rájás, who claim to represent the majesty of this once powerful race. They run thus: *Víra Sri Gajapati, Gaurésvara*, etc. "The illustrious Hero, the Gajpatí (Lord of Elephants), sovereign of Gauṛa (Bengal), Supreme Monarch over the rulers of the tribes of Utkalá, Karnátá, and the nine forts," etc. Stirling, As. Res. xv., p. 272.





tradition, defined the *mark* at 5 *máshas'* weight;\* while Dr. Hunter, under later and more vague native inspiration, pronounces it to be  $\frac{1}{4}$  of a *karishá*, which measure may be assumed to represent the local pronunciation of the old widely-spread *karsha* of Manu, corresponding with the normal weight of the gold *suvarna*, i. e. 80 *ratis*.† Taking the *rati* at 1.75 grains, this will make Mr. Stirling's return amount to 43.75 grains ( $5 \times 5 = 25$ ;  $25 \times 1.75 = 43.75$ ) per *mark*; whereas Dr. Hunter's estimate, under the same figures, would only produce 35 grains ( $140 \div 4 = 35$ ); but, as he assumes the modern *karishá* to be equal to "one *Tolah* or one Rupee" of our modern system,—the amount of which however he does not further define‡,—and taking the 180 grain total as the test,§ the result is not far removed from Mr. Stirling's earlier estimate under the old régime;—producing, in effect, a return of 45 grains for the *mark* ( $180 \div 4 = 45$ ). But, singular to say, if we revert to the more ancient standard of the

\* Asiatic Researches, xv., 271. Mr. Stirling, however, seemed to imagine that the sum named for the total revenues, as tested by this estimate, was too high; but later investigations fully support the reasonable measure of the king's boast.

† J.R.A.S., II., pp. 169, 170. Chronicles of the Pathán Kings, p. 221.

‡ "Orissa," a continuation of the "Annals of Rural Bengal," (London, Smith and Elder, 1872) i., pp. 316, 317. Dr. Hunter, like myself, has endeavoured to make his antiquarian researches instructive in their application to the defects of our own government in India, consequent upon the too frequent disregard of the superior local knowledge and hereditary instincts of the races we are appointed to rule over.

After enumerating the ascertained totals of the revenue of the province at various periods, the author goes on to say, "From time immemorial Orissa, like some other parts of India, has used a local currency of *cowries*. When the province passed into our hands in 1803, the public accounts were kept and the revenue was paid in these little shells." We "however stipulated that the landholders should henceforth pay their land-tax in silver, and fixed the rate of exchange at 5120 *cowries* to the rupee." (In 1804, the official exchange was 5120, and the practical rate of exchange from 6460 to 7680.) . . . . "Had our first administrators contented themselves with taking payment in silver at the current rate of the cowrie exchange, the Orissa land-tax would now have been double what it is at present. But had they resolved to collect it at a grain valuation, according to Akbar's wise policy, it would now be more than double; for the prices of food have rather more than doubled since 1804. The system of paying the land-tax by a grain valuation appears to me to be the best means of giving stability to the Indian revenues."—Orissa, ii., 172. Dr. Hunter had not seen my notice of "The Revenues of the Mughal Empire" (Trübner, 1872) when this was written. I had equally appreciated the equity and suitableness of the system of estimate by agricultural produce, which had come down to Akbar's time from the earliest dawn of the civilization of the nation at large; but I had to condemn Akbar for introducing a new element in the shape of a settlement to be paid in silver, on the average of the prices of previous years—an assessment he hoped, in defiance of the proverbial uncertainty of Indian seasons, to make immutable; furnishing, in effect, the leading idea we so unwisely followed in that deplorable measure, Lord Cornwallis's "Permanent Settlement of Bengal."

§ Prinsep's Essays, U.T., p. 7.



*sataraktika*, or 100-*rati*\* weight,—a metric division which was reproduced and reaffirmed in the authorized *tankah* of the Pathán dynasty, and to which we have to allow a theoretical weight of 175 grains,—Dr. Hunter's  $\frac{1}{4}$  *toláh* will come out, to the exact second place of decimals, of the 43.75 ( $175 \div 4 = 43.75$ ), obtained from Mr. Stirling's data.

The determination of the true weight of the *rati* has done much both to facilitate and give authority to the comparison of the ultimately divergent standards of the ethnic kingdoms of India. Having discovered the guiding *unit*, all other calculations become simple, and present singularly convincing results, notwithstanding that the basis of all these estimates rests upon so erratic a test as the growth of the seed of the Gunjá creeper (*Abrus precatorius*), under the varied incidents of soil and climate. Nevertheless, this small compact grain, checked in early times by other products of nature, is seen to have had the remarkable faculty of securing a uniform average throughout the entire continent of India, which only came to be disturbed when monarchs, like Sher Sháh and Akbar, in their vanity, raised the weight of the coinage without any reference to the number of *ratis* inherited from Hindú sources as the *given* standard, officially recognized in the old, but altogether disregarded and left undefined in the reformed Muhammadan mintages.

I may as well take this opportunity of disposing of the other technical questions bearing upon the general subject; and, without recapitulating the investigations elsewhere given at large, I may state generally, that I understand the *rati* to have been 1.75 grains, the 100 *rati* piece—reproduced in the ordinary Dihlí *tankah*—175 grains. The Rájput *jítal*, composed of mixed silver and copper, preserved in the early Dihlí currencies of the Muslims, is  $\frac{1}{64}$  in value of the 1.75 grain silver coin; but the number of *jítals* in any given composite piece was dependent upon the proportional amount of the silver added to the ruling copper basis. The *kání*, like the *jítal* is  $\frac{1}{64}$  of the *tankah*; but the *kání* is found to be the practical as well as the theoretical divisor, applicable alike to land and other measures, preserving its more special identity in the southern peninsula. Both terms have now been found in conjunction on a single piece of metropolitan fabric, where the *jítal* is authoritatively declared to be of the value of *one kání*.† In more advanced days under the Patháns, immense quantities of pieces were coined to meet the current exchange

\* Chronicles of Pathán Kings, pp. 3,\*167, 223, 224 (note). Dr. A. Weber, in the Zeitchrift for 1861, p. 139, cites the parallel designation of *Sata Krishnala*, from the text of the Black Yajur Veda (circa 800 B.C.). The commentator uses the local name above quoted.

† Numismatic Chronicle (N.S.) iv., p. 40, et seqq. J.R.A.S. (N.S.), II., pp. 150, 166, 168. Chronicles of the Pathán Kings of Dehli, pp. 161, 252.





answering to  $\frac{1}{16}$  or  $\frac{1}{8}$  of the *tankah*; and under Muhammad Tughluq, amid other useful breaks in the too-uniform descending scale of the small change, a new division was introduced in the form of a  $\frac{1}{16}$  or *six-kāntī* piece, which subsequently became better known as the *black tankah*.\*

It would appear that the normal or conventional rate of exchange of the precious metals mechanically accepted in India from the earliest times was as silver to gold 8 : 1; copper to silver 64 : 1. Of course these rates were constantly liable to fluctuation.† Indeed, we can trace the effect of the influx of the gold of the Dak'hin, after its conquest, in the fall of that metal, evidenced by the obvious readjustment of the weights of the gold and silver coinage at the Imperial seat of Government. But the copper rate must have had a very extended lease of immutability, as this ratio of 64 : 1 was maintained from the most primitive ages up to the time of Sikandar Lodi (A.D. 1488-1517).

As regards the application of these data to the examples specially under review, it would seem that the Bengal silver coinage was, from the first, deficient in weight in reference to the corresponding issues of the Dihlī mint; but the Dihlī silver coins were avowedly designed to fall in with the concurrent gold pieces of identical weight, and of full standard in metal: whereas we must suppose that the Lak'hnautī silver pieces, in introducing a new element, were graduated to exchange in *even sums* against the extant gold currency of Bengal and Orisá. Now the gold *mark* weighed, as we have seen, 43·75 grains, which, with gold as 1 to 8 of silver, would require 350 grains of the latter metal as its equivalent, or *two* 175 grain *tankahs*, reconciling alike the *fours* of the Hindú ideal, with the *fives* and *tens* of Muslim predilection; but as there is reason to believe that the local gold was not refined up to a high state of purity, this defective standard may readily account for the corresponding reduction of a few grains on the full total of the silver pieces, equally as it may have justified the acceptance of a lower *touch* in the silver itself.

Later in point of time, under Bahádur Sháh (710-730 A.H.), the progressive fall in the value of gold is more definitively marked by the diminution of the weight of the silver piece to the uniform standard of 166 grains,‡ in contrast to the 169 grains which are preserved in some of the primary issues here described (Nos. 6, 7).

\* Pathán Chronicles, coin No. 207, p. 252. See also pp. 218, 219. I was mistaken in my first impression that the Bengal *tankahs* themselves might have a claim to this obnoxious designation. J.R.A.S., II, 160.

† In Akbar's time, even, the progressive alteration in the value of gold, since so much accelerated, had only reached the proportion of 9·4 : 1. Chronicles, p. 424. J.R.A.S., II, p. 63.

‡ Pathán Chronicles, p. 235. In my previous article in this *Journal*, I was led by



The central figure in the historical tableau, illustrated by these introductory coinages, stands prominently to the front in the person of Ghiyás-ud-dīn 'Iwaz—an outline of whose career I now append.

*Ghiyás-ud-dīn 'Iwaz bin Al-Husain.*

Husám-ud-dīn 'Iwaz *Khiljī*, a native of Ghor in Afghánistán, on joining Muhammad Bakhtyár *Khiljī* in Bengal, was entrusted by that commander with the charge of the district of Gangautrí.\* He was afterwards promoted to the important military division of Deokot,† by Quṭb-ud-dīn Aibak's representative commissioner in the South-east, and with his aid eventually defeated Muhammad Sherán and the other confederated *Khiljī* chiefs.‡ On

Ibn Batútah's indiscriminate use of the terms "Dirhams and Dínárs," in their local application in Bengal, to suppose that his definition of coin exchanges referred to the relative values of gold and silver, and that it in so far supported my estimate of 1: 8 (*J.R.A.S.*, II., p. 61, note 1). I now find that towards the close of Muhammad bin Tughluq's reign, the exchange had come for the moment to be 1: 10 (*Chronicles*, p. 227), in lieu of the ordinary 1: 8. The entire difficulty of the obscure passage in the *Journal of the African Voyager* has, however, been set at rest by the more comprehensive tables of values furnished by the Egyptian traveller Shaikh Mubárah *Anbátt* (*Notices et Extraits*, xiii., 51), which show that the *dínár* of silver (*i. e.* the *tankah*) was equal to 8 *dirhams* (*hasht-kánt*). See also Elliot's *Historians*, iii., pp. 577, 582.

*J.R.A.S.* (N.S.), II., p. 157. The new and unworn pieces in the Koch Bihár *trouvaile* averaged 166 grains; and the earlier issues, of 188, 189 grains, found with them, had generally been reduced in weight to correspond with the later official standard.

\* Variants كنگوری — كنگوری, Text, p. 158, and MSS. I have preserved Stewart's version of the name in my text, but the site of *Gangautrí* has not been identified. There is a town called Gurguri (24° 23'; 86° 55') on the line of country between Bihár and Nágor, but it is not known to have been a place of any mark. There is also a celebrated fort of high antiquity on the same line of communication, named Gídor (24° 53'; 86° 55'), which may have served as an outpost of the Bihár head quarters.

† Deokot (lat. 25° 18'; long. 88° 31'), the chief place in Gangarámpúr (district of Dínájpúr), is now known by the name of Damdamá. Hamilton states that "it received its present appellation from its having been a military station during the early Muhammadan Government" (p. 50). Muhammad Bakhtyár, after his first success against the King of Bengal at Nadiyá (that 23° 25'; long. 88° 22'), contented himself with destroying that town, and withdrew his troops nearer to his base of communications, to a position about 90 miles to the northward, somewhere about the site of the future Lak'hnautí, Deokot again being some 50 miles N.N.E.

Minháji Siráji, in describing Lak'hnautí, at a later date (641 A.H.), mentions that the province lay on both sides of the Ganges, but that the city of Lak'hnautí proper was situated on the western bank. The author adds, that an embankment or causeway (بل) extended for a distance of ten days' journey through the capital from Deokot to Nágor in Bírghúm, (lat. 23° 56'; long. 87° 22').—Stewart's *Bengal*, p. 57. Persian text of *Ṭabaqát-i Nāṣirí*, pp. 161, 162, 243. *Aín-i-Akbarí*, ii. 14. Elliot's *Historians*, ii., p. 318, iii. p. 112. Rennell's *Map*, p. 55. Wilford, *As. Res.* ix., p. 72.

‡ The subjoined curious notice of the distribution of the boundaries of the kingdom of



the definite appointment of 'Alí Mardán Khiljí to the kingdom of Bengal by Qutb-ud-dín Aibak, he paid his devoirs to the new Viceroy by meeting him on the Kúsi, and accompanied him to Deokot, where he was formally installed in power. When Qutb-ud-dín died at Láhor, in 607 A.H., 'Alí Mardán assumed independence under the title of 'Alá-ud-dín; but after a reign of about two years, he was slain by the Khiljí nobles, and Husám-ud-dín was thereupon elected in his stead (608 A.H.). History is silent as to when he first arrogated kingly state, and merely records Shams-ud-dín Altamsh's expedition against him in 622 A.H., with the object of enforcing his allegiance to the Imperial crown, when, after some doubtful successes, peace was established on the surrender of 38 elephants, the payment of 80 *laks* [of *tankahs*?], and the distinct recognition of Altamsh's suzerainty in the public prayers, with the superscription of his titles on the local coinage. The Emperor, on his return towards Dihlí, made over the government of Bihár to 'Alá-ud-dín Jání, who, however, was not long left undisturbed; for the Southern potentate speedily re-annexed that section of his former

Bengal shortly before the Muhammadan conquest has been preserved in Hamilton's 'Hindustan.' The compiler does not give his specific authority.

"During the Adisur dynasty, the following are said to have been the ancient geographical divisions of Bengal. Gaur was the capital, forming the centre division, and surrounded by five great provinces.

"1. Barendra, bounded by the Mahananda on the west; by the Padma, or great branch of the Ganges, on the south; by the Kortoya on the east; and by adjacent governments on the north.

"2. Bangga, or the territory east from the Kortoya towards the Brahmaputra. The capital of Bengal, both before and afterwards, having long been near Dacca in the province of Bangga, the name is said to have been communicated to the whole.

"3. Bagri, or the Delta, called also Dwípa, or the island, bounded on the one side by the Padma, or great branch of the Ganges; on another by the sea; and on the third by the Hugli river, or Bhagirathi.

"4. Rarhi, bounded by the Hugli and the Padma on the north and east, and by adjacent kingdoms on the west and south.

"5. Maithila, bounded by the Mahananda and Gaur on the east; the Hugli or Bhagirathi on the south; and by adjacent countries on the north and west."

"Bollal Sen, the successor of Adisur, is said to have resided partly at Gaur, but chiefly at Bikrampur, eight miles south-east of Dacca." Bollal Sen was succeeded by Lakshmana Sen, who was defeated by Muhammad Bakhtyár. The author continues, "it is possible that the Raja only retired to his remote capital, Bikrampur, near Dháká, where there still resides a family possessing considerable estates, who pretend to be his descendants. We also find that Soonergong, in the vicinity of Bikrampur, continued to be a place of refuge to the Gaur malecontents, and was not finally subjugated until long after the overthrow of Rájá Lakshmana."—Hamilton's *Hindustan* (1820) i., p. 114.

و چون او [محمد شیران] مهتر امیرای خلیج بود همگان اورا  
Text, p. 158.—خدمت می کردند و هر امیر بر اقطاع خود می بود. Stewart's Bengal,  
p. 51. Elliot's *Historians*, ii., p. 315.



dominions,—an aggression which was met, in A.H. 624, by the advance of Náçir-ud-dín Mahmúd, the eldest son of Altamsh, in force, who, in the absence of Ghiyás-ud-dín 'Iwaz on distant enterprises, succeeded in obtaining possession of the new seat of government. In the subsequent engagement, the Bengal army was defeated, and Ghiyás-ud-dín killed, after a reign estimated by the local annalist at 12 years.\*

This is all the information we are able to gather from the incidental biographical notices furnished by our sole authority, Minháj i Siráj, that most intelligent employé of the rulers of Dihlí, and welcome visitor at the Court of Lak'hnauti in A.H. 641, where he saw and appreciated the material undertakings of this self-made king, whose memory he lauds enthusiastically. A tribute Altamsh had virtually anticipated, when he was at last permitted to behold the glories of his adversaries' capital, in 627 A.H., and then conceded the tardy justice of decreeing, that in virtue of his good works, Ghiyás-ud-dín 'Iwaz should, in his grave, be endowed with that coveted title of *Sultán*, which had been denied to him while living.†

We have now to examine how far the recently discovered coins will fill in this defective historical outline.

COINS STRUCK IN THE NAME OF ALTAMSH, in Bengal.

No. 1. Silver. Size,  $7\frac{1}{4}$ . Weight, 168 grains. *Unique*, in this date.

Pl. x. fig. 1. A.H. 614.

OBVERSE.

السلطان المعظم  
شمس الدینا و الدین  
ابوالمظفر الدمش القطبی  
ناصر امیرالم—و صیدین

REVERSE.

*Device.*

Horseman at the charge.

*Margin—*

لا اله الا الله [محمد] رسول الله  
بتاریخ سنه اربع عشر و ستماية

\* Allowing 'Alí Mardán from 607—8 to 609—10, this leaves an interval up to 612 during which Husám-ud-dín 'Iwaz was content to remain head of the Khiljí oligarchy and local governor.

† *Tabaqát-i Náçirí*, Text, p. 163. Mr. Blochmann has an interesting paper, in the September number of the *Indian Antiquary* (p. 259), on Muhammadan Titles. Among other questions discussed is the derivation and early application of the title of *Sultán*. The author remarks that "the first clear case of *Sultán* having been used as a title belongs to the time of Rukn-ud-daulah, deputy over Fárs, under the Khalífah Al Mu'ti' billah," A.H. 338, or A.D. 949. MM. Oppert et Ménant were under the impression that they had discovered the title so early as the time of Sargon, who, in his grand inscription at Khorsábád, is said to speak of Subaco as "*Siltán*, or Sultán d'Egypte."—*Journal Asiatique*, 1863, p. 9, and *text*, p. 3. Commentary, 1864, p. 10. Some doubt has, however, since been thrown upon this identification, as the designation reads optionally, if not preferably, תרת. Schröder, *Cuneiform and Old Testament Studies* (1872), p. 157.





The date of A.H. 614, this earliest numismatic record contributed by the Bengal mints, is further remarkable as the epoch of Altamsh's final assertion of supremacy on the defeat of his last powerful competitor in Hindústán, Náçir-ud-dín *Qubáchah*, after he had already disposed of his other prominent rival, Táçud-dín Ilduz, in 612 A.H. The issue of these provincial coins, at this conjuncture, would seem to attest the first voluntary recognition of Altamsh by Husám-ud-dín 'Iwaz, who was at this time in undisturbed possession of Bengal and its dependencies. The adoption of the Cavalier device on the obverse may have been suggested by the conventional acceptance of that design on the money of the native princes of the North-west, whose hereditary types were copied by Muhammad bin Sâm, and retained for a long period by Altamsh himself. In the new mintage, however, the Rájput horseman with his spear is superseded by the Túrki Cavalier with the historical mace,\* and the general outline of the coarse Northern steed may perchance have been heightened to record a triumph, or to carry a menace to the subjected Bangális,† who had left their king to escape ignominiously, and virtually surrendered their capital to the eighteen troopers of Muhammad Bakhtyár's advance guard.

Among other peculiarities of these coins is the tenor of their legends, which differ from the ordinarily adopted Imperial intitulations of the Sultán, who is here designated as *القطبي*, the slave or freedman of Quṭb-ud-dín Aibak, —a term which may have concealed a latent taunt to one who was now supreme in the chance virtue of his arms, or may otherwise indicate the independent Khiljí method of discriminating the followers of Quṭb-ud-dín

\* Mahmúd of Ghazní's favourite weapon. Tradition affirms that it was preserved in all honour by the guardians of his tomb at Ghazní. (Atkinson, *Expedition into Afghánistán*, p. 222). So much credence was attached to this ancient legend, that we find Lord Ellenborough in 1842 instructing his generals in sober earnestness, to "bring away from the tomb of Mahmúd of Ghazní his club which hangs over it." Muhammad Bakhtyár himself had also won glory by the use of his mace in his gladiatorial encounter, single-handed, with an elephant, who was compelled to retreat before the first blow of his powerful arm.

† The name of *Aswapatis*, "Lords of Horses," was subsequently applied specifically in Orísá to the Muhammadan conquerors. Mr. Hunter remarks, "The Telugu Palm Leaf MSS. state that between (Saká 895) A.D. 972 and A.D. 1563, three great powers successively arose. During this period, the *Gajapatis*, 'Lords of Elephants,' ruled in Orissa and the north of Madras; the *Narapatis*, 'Lords of Men,' held the country to the southwards. The Lords of Horses were the Musalmáns, who, with their all-devouring Pathán cavalry, overthrew the two former."—Orissa, ii., p. 8. \*Stirling, *Asiatic Researches*, xv., p. 254. *Aín-i-Akbarí*, Gladwin's translation, i., p. 319. Abul Fazl, in describing the game of cards, affected by his royal master, speaks of "*Ashweput*, the king of the horses. He is painted on horseback, like the king of Dēhli, with the Chutter, the Alum, and other ensigns of royalty; and *Gajput*, the king of the elephants, is mounted on an elephant, like the king of Orissa."



as opposed to the Mu'izzi faction of the nobles of Hindústán, who had already tried conclusions with each other, to the disadvantage of the latter.

No. 2. Gold. Weight, 70·6 grains. *Unique. Gaur, A.H. 616.\**

OBVERSE.	REVERSE.
السلطان المعظم	Horseman at the charge.
شمس الدنيا والدين	In the field—ضرب بکور
ابو المظفر الدمشقي	Margin—
القطبي برهان	لا . . . رسول الله بتاريخ سنه
امير المومنين †	ست عشر وستمائة

This unique gold coin of the period, put forth under Muslim auspices, is of more than usual value in confirming the locality of the mint of its counterparts in silver, which are deficient in any geographical record; indeed, none of the Bengal coins, which form the bulk of the *trouvaille* to which the present notice is devoted, bear any indication of the site of which they were struck. Found, however, in company with so many clearly local pieces, there would have been little hesitation in assigning them to the southern division of the new Muhammadan empire; but the distinct announcement of the place of issue of the gold piece is of importance, not only in fixing definitively the then head-quarters, but in presenting us with the name of *Gaur*, ‡ regarding the use of which, at this epoch, there was

\* For a figure of the coin, *vide* *Chronicles of the Pathán Kings*, p. 78.

† Qilij Arsalán, the Saljúq of Anatolia (A.H. 656), uses this title of *برهان امير المومنين* (Fræhn, p. 156). The three sons of Kai Khusrau (A.H. 647) employ the term in the plural *براهين*.

‡ I need have no hesitation in admitting that on the first examination of this piece, as an isolated specimen of a hitherto unknown mintage, I was disposed, in the absence of any dot either above or below the line of writing, to adopt the alternative reading of *نکور* instead of *بکور*, while confessing a preference for the latter transcription, on account of the need of the preposition *ب* (*Chronicles of the Pathán Kings*, p. 79); but, at the time, I was unprepared to expect that Altamsh's sway had extended to the lower provinces, which were avowedly in independent charge of the Khilji successors of Muhammad Bakhtyār. This difficulty is now curiously explained by the concurrent silver pieces, and the supposition that the local chieftain found it expedient to profess allegiance, nominal or real, to the preponderating influence of the master of Hindústán. In like manner, the recently discovered silver coins have supplied a clue to the more satisfactory decipherment of the marginal legend, and the explanation of other minor imperfections in the definition of the exotic characters of the gold coin, which it is useless to follow in detail.



some controversy.\* Advantage has been taken in this, to the native comprehension, more elaborately-finished piece, to insert in the vacant spaces on the field, above and below the main device, the words, ضرب بگور "struck at Gaur," and although the requisite dot below the *be* has escaped definition, there need be little doubt as to the purport of the entry, which it was not thought necessary to reproduce on the less-esteemed silver money, whose status with the mint officials, as equally with the public at large, ranged at a lower level.

The date of 616 A.H. on this coin, supported and in a measure explained as it is by the marginal legend on No. 3, proves that the professed allegiance of the local ruler of Bengal to the head of the followers of Islám at Dihlí, was no momentary demonstration, but a sustained confession of vassalage extending over one complete year, and portions of the previous and succeeding twelve months.

The topographical record on No. 2 would further seem to show that Husám-ud-dín had not as yet transferred his capital to the new site of *Lak'hnaúti*, to the west of the river, whose designation first appears in a definite form on the coins of the Empress Raziyah, in A.H. 635.†

No. 3. Silver. Size, 7. Weight, 168 grains. *Very rare.*

Pl. x. fig. 2. A.H. 616.

OBVERSE.	REVERSE.
السلطان المعظم	Horseman at charge.
شمس الدنيا والدين	<i>Margin—</i>
ابوالمظفر العدمش	لا اله الا الله محمد رسول الله
القطبي برهان	بقارنج سنة ست عشرو ستماية

No. 3a. Variety. Weight, 162 grs. Pl. x., fig. 3. Date illegible. The Persian legend on the obverse is given in very imperfectly defined characters, and offers the peculiarity of the insertion of the Hindí letters *श*, for *Sháh*, above the name of the king, thereby indicating that both die-engravers and the local public were naturally better versed in the old alphabet than in the newly-imported letters of the conquerors.

\* J.R.A.S. ii., N.S., p. 187. Cf. also Albirúni; Reinaud, *Mémoire sur l'Inde*, p. 298, quoted in J.R.A.S. i., N.S., p. 471. As. Res. ix., 72, 74; xvii. 617. Wilson's Glossary, *sub voce*, etc. Rennell, *Map of Hindústán*, p. 55. Stewart's Bengal, pp. 44, 57.

† Chronicles of the Pathán Kings, p. 107. J.R.A.S., N. S., II., p. 187, coin No. 14 *infra*.



## COINS OF GHIYA'S-UD-DIN 'IWAZ.

No. 4. Silver. Size, 7½. Weight, 161 grs. (full weight.)

Pl. x., fig. 4. A.H. 616. (7 specimens.)

OBVERSE.	REVERSE.
السلطان	لا اله الا
المعظم غياث الدنيا	الله محمد
و الدين ابو الفتح	رسول الله
عوض بن الحسين ناصر	Margin— ضرب هذه السكه في
امير المؤمنين	شهور سنة ست عشرو ستمائة

Coin No. 4 teaches us that in the same year 616 A.H., in the early part of which Husám-ud-dín 'Iwaz had confessed allegiance to Altamsh, he seemingly grew weary of such pretences, and openly declared himself *Sultán* in his own right, assuming the regal title of *Ghiyás-ud-dín*, and the quasi-hierarchical function implied in the designation of *Náçir Amír Al Múminín*, "Defender of the Commander of the Faithful." Whether this overt assertion of independence was suggested by his own growing power, or was due to the imagined weakness of the suzerain, is not clear; but there can be no question as to his success in the extension and consolidation of his dominions, or to his vigorous administration of a country, fertile in the extreme, and endowed with such singular commercial advantages of sea and river intercourse.

At this particular juncture, Altamsh does not seem to have been pressed by any important home disturbances, but there were dark clouds on the N. W. frontier. The all-powerful 'Alá-ud-dín Muhammad *Khárazmí*, whose outpost extended over so large a portion of Asia, had been coining money in the inconvenient proximity of *Ghazní* throughout the years 613, 614-616, A.H.;\* and no one could foretell when he might follow the ordinary precedent and advance into Hindústán. As fate determined, however, it was left to his son *Jalál-ud-dín* to swim the Indus, at the risk of his life, as a fugitive before the hosts of Chingíz Khán, in 618 A.H.

The mention of *Chingíz Khán* suggests to me the desirability of repeating a correction, I have already recorded elsewhere, of a singular delusion, shared alike by native copyists and English commentators, regarding one of the supposed incidents of the sufficiently diversified career of this scourge of the world, to the effect that his unkempt savages had penetrated down to the impossible limit of the lower Ganges. The whole series of mistakes, Asiatic or European, may now be traced back to a simple clerical error in the transcription from a chance leading copy of the ordinarily rare work of Minháj i Siráj—where the name of *Chingíz Khán* جنگیز خان has been substituted for the more obvious designation of the ancient town of *Táj Nagar* تاجنगर.

\* J.R.A.S. ix., 381; xvii., 202; *Chronicles of Pathán Kings*, p. 86.





Modern authors, examining a single passage, might well have felt reserve in reconstructing at hazard a primary version; but the editors of the Calcutta official printed text have gone so far towards perpetuating the enigma they were unable to unravel, as to add to the difficulties of solution by making Chingiz Khán fight (so far on his way to Lak'hnauti) the memorable battle of Perwán [ $30^{\circ} 9' N.$ ,  $69^{\circ} 16' E.$ ] on the conveniently converging site of Badáon (p. 348), which was situated on one of the favourite main lines of transit to the south, east of the Ganges. This conglomeration is, however, the less excusable, as Stewart, in his *History of Bengal*, had already pointed out Firishtah's palpable mistake to the same effect; and the editors themselves unconsciously admit the preferable variant of جاجنر inserted in the foot-note, p. 199. Dr. Hunter, I see, in his new work on Orissa (ii. 4), incautiously follows Stewart's first impressions, in the notion that the "vanity" of Muhammadan historians had intentionally "converted the attack of the humble Orissians into an invasion of Tartars" (Stewart, p. 62).\* I myself prefer the more obvious and direct explanation above given, which perhaps reflects more upon our defective criticism than upon Muslim vanity.†

\* Mr. Stirling, in his most exhaustive *Memoir on Orissa*, published in the *Asiatic Researches* in 1822, observes:—"Major Stewart, in his *History of Bengal*, places an invasion of Orissa by the Mussalmans of Bengal during this reign, that is A.D. 1243. The *Chronicles* of the country contain no mention of such an event. I have not Major Stewart's authorities at hand to refer to, but strongly suspect that he has been led into an error by mistaking some word resembling Jajipur, for Jajipur in Orissa. He expresses himself thus: 'In the year 614 (A.D. 1243), the Raja of Jagepur (Orissa) having given some cause of offence, Toghan Khan marched to Ketasun, on the frontier of Jagepur, where he found the army of the Raja had thrown up intrenchments to oppose him'. . . . Now, in the first place, Jajipur was never a separate principality, as here described; and there is no such place in Orissa as Ketasun. Firishtah is altogether silent on this subject in his *history of Bengal*, but in his general history he ascribes the siege of Gour, in the very year in question, to a party of Mogul Tartars who had invaded Bengal by way of Chitta, Thibet, etc. Dow's mistake of a similar nature is scarcely worth noticing. He makes Sultan Balin pursue the rebel Toghrul into Jajnagar (A.D. 1279), which he calls *Orissa*, whereas it is evident from the mention of Sunargaon as lying on the road, that Jājūnagar is some place beyond the Ganges."—Stirling, *As. Res.* xv., p. 274.

It seems to have escaped Mr. Stirling's notice, that Stewart had already corrected his own error in speaking of "Jagepore" as "*Orissa*," pp. 61 and 65, by placing that town in its proper position in "*Tipperah*," in a later passage (p. 70); and he further improved upon his advanced knowledge by saying in a note, at p. 72, "Jagenagar is said to have been a town in Orissa, near Cuttack; but this passage proves it to have been situated on the eastern side of the Burhampooter. The Jagenagar mentioned by Firishtah should have been written Jagepore." [?] Stewart, *Hist. Bengal*, p. 72. Dow, i. 202 (4to. edit.). Briggs i., 260. See also *Chronicles of Pathán Kings*, p. 121.

† Cf. Elphinstone (new edit. by Professor Cowell), p. 377. Elliot, *Muhammadan Historians* ii., pp. 264, 344. Dr. Lee's *Ibn Batútah*, *Oriental Tr. Fund*, p. 97. Firishtah



No. 5. Silver. Size, 8½. Weight, 165 grs. A.H. 617.  
(2 specimens.)

## OBVERSE.

السلطان  
المعظم غياث الدنيا  
والدين أبو الفتح عوض  
بن الحسين ناصر أمير  
المومنين

## REVERSE.

لا اله الا  
الله محمد رسول  
الله  
ضرب هذه السكة في—Margin  
التاريخ السابع عشر وستمائة

No. 6. Silver. Size, 8. Weight, 169. (Coarse badly formed legends).  
A.H. 617. (2 specimens.)

## OBVERSE.

السلطان الاعظم  
غياث الدنيا والدين  
أبو الفتح عوض بن الحسين  
ناصر أمير المومنين و  
ولي عهده علا الحق  
والدين

## REVERSE.

لا اله الا الله  
محمد رسول الله  
الناصر لدين الله  
أمير المومنين  
ضرب هذه السكة في—Margin  
شهر سنة سبع عشرة وستمائة

No. 6a. Variety. One example gives the altered marginal reading of

ضرب هذه السكة في ربيع الآخر سنة سبع \* \* ستمائة

Al Nācīr li-dīn Illāh was invested in the Khilāfat in A.H. 575, and died on the 1st Shawwāl, A.H. 622 (5th October, 1225, A.D.). Bar Hebraeus, *Abulfaraj*, pp. 269–301. Ibn Aṣīr, p. 285, fixes his death at the end of Ramazān. Price, *Muhammadian History*, ii., 210.

The tenor of the legends of the consecutive issues of A.H. 617 disclose an increasing confidence in his own power on the part of *Ghiyās-ud-dīn 'Iwaz*, in the addition made to his previous titles, and in the assumption of the superlative *Al A'zam*, "the highest," as the prefix to the *Al Sultān* in place of the heretofore modest adjective of *Al Mu'azzam*, "the great."\*

*Bombay Persian Text*, i., p. 122. *Badāonī, Calcutta Persian Text*, p. 88. *Ṭabaqāt i Nācīri, Calcutta Persian Text*, pp. 157, 163, 199, 243, 245.

\* Altamsh himself seems to have been indifferent to this distinction, but its importance is shown in the early coinage of Muhammad bin Sām, who invariably reserves the superlative prefix for his reigning brother, while he limits his own claims to the virtually comparative *المعظم*. And further to mark these gradations, he prominently adopts the higher title after his brother's death. *Chronicles of Pathān Kings*, pp. 12, 13, 14. *Ariana Antiqua*, pl. xx., figs. 29, 35.



Here, for the first time in this series, we meet with the official or regnant designation of, the Khalífah of Baghdád, who has hitherto been referred to by the mere generic title of "Commander of the Faithful."

It would appear from this innovation, as if Ghiyás-ud-dín had already, indirectly, put himself in communication with the Pontifical Court at Baghdád, with a view to obtaining recognition as a sovereign prince in the Muslim hierarchy,—a further indication of which may possibly be detected in the exceptional insertion of the *month* in addition to the ordinary *year* of issue on the margin of No. 6a.; a specification which will be found more fully developed in the succeeding mintages, where it admits of an explanation which is not so obvious or conclusive in this instance.

No. 7. Silver. Size, 9. Weight, 169 grs. Pl. x., fig. 5.\* Dated 20th of Rabi' ul ákhir, A.H. 620. (7 specimens.)

## OBVERSE.

غياث الدنيا  
والدين ابو الفتح عو  
ض بن الحسين قسيم امير المومنين  
سلطان السلاطين في الدنيا  
والدين ابو المظفر على يده  
امير المومنين  
خلد الله ملكه

## REVERSE.

لا اله الا الله  
محمد رسول الله  
الناصر لدين الله  
امير المومنين  
في التاريخ العشرين —  
من شهر ربيع الآخر سنة  
عشرين و ستماية

No. 7a. Variety. Weight, 165 grs. Coin of the same date and similar character, which transfers the complete name of عوض into the third line; the dubious prefix to the second الدين و الدنيا reads more as معزز, while the suggested يده, above given, appears as يدو.

If the preceding coins had left any doubt as to Ghiyás-ud-dín's designs in regard to the assumption of sovereign power, the tenor of the legends on Nos. 7 and 7a, would conclusively set that question at rest. Here, not content with the recently-arrogated title of السلطان الاعظم, we find him calling himself "*Sulṭán of Sulṭáns*," by direct appointment of the

\* See also Marsden, No. DCCLVII, p. 564. There are two coins of this type in his collection in the British Museum. Marsden remarks, "The date of this coin, the earliest of those belonging to the princes who governed Bengal in the name of the Kings of Dehli, but who took all opportunities of rendering themselves independent, is expressed distinctly in words. . . . The titles and patronymics of the Sultán by whom it was struck are for the most part illegible; not so much from obliteration, as from the original imperfect formation of the characters."





Khalifah,\* associated with which is the entry of a specific date, with the still more unusual definition of the day of the month, which is preserved constant and unvaried throughout the entire issue. More remarkable still is the abnormal departure from the conventional form of coin legends, in the omission of the preliminary "*Al Sultán*," and the abrupt introduction of the regnal title of the once probational *Husám-ud-dín*, under his more ambitious designation of *Ghiyás-ud-dín*. In short, the entire drift of the altered superscription points to an intentional reproduction of some formal phraseology, such as would be eminently consistent with an official transcript of the *revered* precept emanating from Baghdád.

I should infer from these coincidences that a formal diplomá had by this time been conceded by the Supreme Pontiff, admitting the newly-erected kingdom Bengal within the boundaries of Islám, and confirming the reigning monarch in possession, with added titles and dignities. The date so prominently repeated may either be that upon which the patent was originally *sealed*, or more probably it points to the auspicious moment of the reception of the ambassadors, who conveyed the formal document and paraphernalia of investment, at the Court of Lak'hnautí. This assignment in no way disturbs my previous attribution of the inaugural piece of Altamsh,† marking his attainment of the like honours in A.H. 626. The very concession to the Bengal potentate possibly led his once suzerain to seek a parallel sanctification of his own rights, which he had previously been content to hold by the sword: and the difficulty of communication with Baghdád over alien kingdoms and disturbed frontiers would account for a delay of the emissaries on the one part and the other, which would not affect the open ocean passage between the mouths of the Ganges and the sea-port of Baḡrah.

\* The term *علي يدى* is of frequent occurrence on the early Muslim coinages, and is usually associated with the name of the officer—whatever his condition—responsible for the mint issues, as *علي يدى احمد*, which is translated by Fræhn as "*manibus*" (*i. e. curâ et operâ*) *Ahmadis* or "*curante*,"—a definition accepted in later days on the Continent as "*par les mains de, par les soins de*, etc. In the present instance it would seem to imply a more or less direct intervention by the Commander of the Faithful himself in favour of his nominee.

† Initial Coinage of Bengal, J.R.A.S. ii., n.s., p. 154, No. 1, *note*; *Chronicles of the Pathán Kings*, p. 46. Of course, this exceptional issue will now have to cede priority of date both to the Bengal coins of A.H. 613, etc., and likewise to the northern piece of Altamsh, No. 8, which must be taken as anterior to No. 10.



## COIN OF ALTAMSH.

No. 8. Silver. Size  $8\frac{1}{2}$ . Weight, 168 grs. Square Kufic characters, which seem to belong to Lāhor or some northern Mint.\* Pl. x., fig. 6. A.H. 62\*.

## OBVERSE.

السلطان  
المعظم شمس  
الدنيا و الدين  
ابو المظفر ايلندمش  
السلطان يمين خليفه  
الله ناصر امير  
المومنين

## REVERSE.

لا اله الا الله  
محمد رسول  
الله الناصر لدين  
الله امير المومنين  
Margin— هذا الضرب ؟  
عش [رين وست مايه

## BENGAL COINS OF ALTAMSH SUBSEQUENT TO THE RE-ASSERTION OF HIS IMPERIAL SWAY.

No. 9. Silver. Size 8. Weight, 161 grs. Bengal type of coin. A.H. 622.

## OBVERSE.

السلطان  
المعظم شمس الدنيا و  
الدين ابو المظفر ايلندمش  
السلطان يمين خليفه  
الله ناصر امير المومنين

## REVERSE.

As in Nos. 6 and 7,—coins of Ghiyās-ud-din, with the name of the Khalifah *Al Nāṣir-li-dīn Illāh*.  
Margin— هذا الضرب + في شهر سنه اثني  
عشرين و ستماية

Altamsh does not seem to have found it convenient to proceed against his contumacious vassal, who was now ready to meet him on almost equal terms, till A.H. 622, when the coinage immediately attests one part of the compact under which peace was secured, in the exclusive use of the name

\* Chronicles of the Pathān Kings, p. 15. Pl. i., figs. 4—8.

† This word as designating the coin is unusual; but we have the term *دار الضرب* for the Mint, and the *ضرب هذه*, etc., as the ordinary prefix to the *الفضة* or *السكة* of the Pathān monarchs. The letters on the Bengal coins look more like *الغرب*, which, however, does not seem to make sense. Frähn long ago suggested that the word *ضرب* ought to be received as a substantive, especially in those cases where the preposition *ب* did not follow it, in the given sentence as a prefix to the name of the mint city.



of the Emperor of Hindústán on the money of Bengal.\* That the issue represented by No. 9, proceeded from the local mints, is evident alike from the style and fabric of the pieces, their defective metal, and the uncouth forms of the letters of the legends.

No. 10. Silver. Size 8. Weight 168 grs. (2 specimens.) Pl. x., fig. 7, A.H. 624.

## OBSERVE.

السلطان الاعظم  
شمس الدنيا و الدين  
ابو المظفر ايلدش  
السلطان ناصر امير  
المومنين

## REVERSE.

لا اله الا الله محمد  
رسول الله  
الظاهر بامر الله  
امير المومنين  
ضرب هذا شهر سنة اربع  
وعشرين و ست مائة

Margin—

Al Zāhir bi-amrillah, the Khalifah whose name is inscribed on this coin, succeeded his father on the 2nd of Shawwāl, A.H. 622, and died on the 14th Rajab, A.H. 623 (July 11, 1226, A.D.). Bar Hebraeus, *Abulfaraj*, p. 302.

No. 11. Silver. Size, 7. Weight, 167 grs. *Unique*. Pl. x., fig. 8, A.H. 624.

Square area, within double lines, following the pattern of some of the examples of Muhammad Ghorī's coins.

السلطان الاعظم  
شمس الدنيا و الدين  
ابوالمظفر ايلدش  
السلطان ناصر

The words امير المومنين are inserted in the interstices between the square area and the circular marginal line, as in the Dibli coins of Bahram Shāh.†

## REVERSE.

Legend in the area as in the last coin, with the name of the Khalifah *Al Zāhir*.

ضرب شهر سنة اربع  
وعشرين و ست مائة

\* غياث الدين عوض خلجي رقبه خدمت در ربقة انقياد آورد و سي [سي و هشت]  
زنجير پيل و هشتاد لك مال بدان و خطبه و مسكه بنام مبارك شمسي كرد

Calcutta text, pp. 163, 171.

† *Chronicles of the Pathān Kings*, p. 118.





It might be supposed to be an open question as to whether Ghiyás-ud-dín 'Iwaz or Náçir-ud-dín Mahmúd,—the eldest son of Altamsh and his viceroy in Bengal—presided over the mints which put forth the coins classed under Nos. 10 and 11. As regards the latter, at present *unique*, piece, there can be little doubt, from its assimilation to the ordinary Dihlí models, that it formed a portion of the revised and improved coinage of the south after Mahmúd's defeat of Ghiyás-ud-dín in 624 A.H. In like manner, the introduction of the term *الاعظم* on No. 10, as a prefix to the title of *Sultán* Altamsh, points to a feeling of filial reverence, which is altogether wanting even in Ghiyás-ud-dín's repentant manifesto in the legend of No. 9. Mahmúd's appointment to the government of Audh dates from A.H. 623,\* and the tenor of one of the narratives of Minháj i Siráj would imply that he proceeded southwards with but little delay; so that all coins bearing the date of 624, with the name of Altamsh, might preferentially be assigned to his interposition, more especially as Ghiyás-ud-dín at, and prior to this, period had placed himself in a renewed attitude of insurrection.

*Coin of Náçir-ud-dín Mahmúd Sháh, as Viceroy in Bengal.*

The administration of the Bengal mints under the official auspices of Náçir-ud-dín Mahmúd, as developed in the issues Nos. 10, 11, leads up to and confirms with more full effect an identification I have hitherto been obliged to advocate in a less confident tone—that is, the attribution of the piece, figured in my 'Chronicles of the Pathán Kings,' p. 81, to the eldest son of Altamsh, at some period towards the close of his brief career. With these newly-discovered evidences of his overt intervention in the local currencies, the transition to a subdued and possibly paternally-sanctioned numismatic proclamation, in his own name, would be easy, more especially if that advance was made simultaneously with the effusive reception at Dihlí of the reigning Khalífah's earliest recognition of Altamsh's supremacy, coupled with the desirability of making this Imperial triumph manifest in those southern latitudes, where other dynastic names had already claimed a prior sanctification.†

\* Persian text, 180.

† Minháj i Siráj, after completing his account of Náçir-ud-dín's conquest of Ghiyás-ud-dín 'Iwaz, and the transmission of the spoils to the Sultán at Dihlí, continues—

و چون تشریفات دار الخلافه بحضورت سلطان شمس الدین طاب ثراه  
رسید از آنجمله يك تشریف گرانمایه با چتر لعل بطرف لكهنوتی فرستاد ملك ناصر  
الدین علیه الرحمة بدان چتر و تشریف و اکرام مشرف گشت و همگدان را از ملوک  
و اکابر مملکت هند نظر بدو بود که وارث مملکت شاهی او باشد . فاما . . . بعد از  
یکسال و نیم . . . بر حمت حق تعالی پیوست . p. 181

(See also Elliot's *Historians*, ii., pp. 326, 329.) The Khalífah's emissary arrived at Dihlí on the 22nd of Rabí'-ul-Awwal, (3rd month of) A.H. 626, p. 179, and news of the death of Náçir-ud-dín Mahmúd reached the capital in the 5th month of the same year, p. 174.



Such an authorized augmentation of the Prince's state is rendered the more probable, as Altamsh in a measure shared with his favourite son the honours and dignities conferred by the Khalífah, and simultaneously extended to him the right to use an umbrella with the tint of Imperial red.\* Náçir-ud-dín Mahmúd, the contemporary biographer remarks, was from that time looked upon as the recognized successor to the throne of Hindústán. Equally, after Mahmúd's premature death, his father still so held him in honour that his body was brought to Dihlí, and enshrined under one of the choicest domes that Eastern Saracenic art could achieve, which to this day, amid its now broken marbles, stands as a monument of the virtues of this prince, and preserves in its decaying walls the remains of† the *first* royal tomb of the slave kings erected near the capital,‡ on the shattered entrance arch of which we can still trace the devotional prayer of the father for the soul of his son, whose mundane glories he briefly epitomizes as "King of Kings of the East," implying, in the conventional terms of the day, all India beyond the Ghāgrā.

And still further to secure a contemporary memento of his lost heir, Altamsh conferred the same name and title upon a younger son, who, in his

\* The founder of the Ghaznawí dynasty, the Great Sabuktigín, assumed regal state under the shadow of a *red* umbrella. Altamsh's ensigns are described as *black* for the right wing رايات ميمنه سياه, and *red* for the left wing رايات ميسره لعل. Mu'izz-ud-dín Muhammad bin Sâm's standards bore the same colours, but the discrimination is made that the *black* pertained to the Ghórís, and the *red* to the Túrks, p. 127. Ghiyás-ud-dín Muhammad bin Sâm used *black* and *red* for the two wings respectively, p. 83.

† INSCRIPTION ON THE TOMB OF SULTA'N GHA'ZÍ [NA'SIR-UD-DÍN MAHMÚD] AT DIHLÍ, DATED A.H. 629.

امر ببناء هذه القبة المباركة السلطان المعظم شاهنشاه الاعظم مالك رقاب  
الاعم ظل الله في العالم ذو الامان لاهل الذمة سلطان لسلطين شمس الدنيا  
والدين المخصوص بعنايت رب العالمين ابي المظفر الملكش السلطان ناصر امير  
المومنين خلد الله ملكه اروضة ملك الملوك الشرق ابي الفتح محمود تعمرة الله  
بغفرانه واسكنه كنف نعيم جنانه في شهر منه تسع و عشرين و ستمائة ١١

This Tomb, which is known at the Maqbarah of Sultán Gházi, stands amid the ruins of the village of Malikpúr Koyi, about three miles due west of the celebrated Quṭb Minár. Aṣār-us-Sanádíd, Dihlí, 1854, pp. 23, 30 (Nos. 12, 18, Facsimile), and 60 (modern transcript revised). See also Journal Asiatique, M. G. de Tassy's translation of the *Urdú* text; also Journal Archaeological Society of Dehli, p. 57, and Hand-book for Dehli, 1863, p. 85.

‡ Rukn-ud-dín Fírúz Sháh, another son of Altamsh, who for a brief period held the throne of Dihlí, found a final resting-place on the chosen site of Malikpúr; and his brother in deferred succession, entitled Mu'izz-ud-dín *Bahrám Sháh*, followed him into the Tomb of the Kings in the same locality.—Aṣār-us-Sanádíd, pp. 25, 26. Elliot's *Historians*, iii, 382. *Chronicles of Pathán Kings*, p. 290.





turn, was destined to occupy the throne of Dihlí for twenty years, and the name of Náçir-ud-dín Mahmúd was perpetuated anew in the next generation under another dynasty, as the designation of Balban's heir, who carried it back to Bengal, where he was permitted to found a new family of southern kings, who for half a century succeeded in maintaining a fitful sovereignty, seldom disturbed by the more powerful Sultáns of Hindústán.

No. 12. Silver. Size 8. Weight, 163.1 grs. *Unique.* British Museum. *Vide* Chronicles, p. 81.

## OBVERSE.

السلطان الاعظم  
ناصر الدنيا والدين  
ابوالمظفر محمود  
شاه بن سلطان

## REVERSE.

في عهد الامام  
المستنصر بالله امير  
المومنين

Al Mustançir billah was inaugurated on the 14th of Rajab, 623 A.H. = 1226 A.D., the same day that his father Al-Záhir died. Bar Hebræus, p. 303.

I quote in illustration of my previous remarks, the legends on the special issue of Altamsh on the occasion of the receipt of his diploma of investiture in A.H. 626.

Weight of the B. M. Coin, 164 grains.

OBVERSE— لا اله الا الله محمد رسول الله

REVERSE—As above, in No. 12, with similarly formed characters.\*

It may be noted that on a like occasion of the reception of the Egyptian Khalifah's diploma at Dihlí in 744 A.H., Muhammad bin Tughluq adopted a similar method of exhibiting his respect by introducing the pontiff's name on the coinage to the exclusion of his own.

The identification of the individual, who styles himself Daulat Sháh with many high-sounding prefixes, on the subjoined coin, demanded a certain amount of patient patch-work, which I have relegated to the note below.†

\* Chronicles of the Pathán Kings, p. 46.

† در ماه جمادى الاولى سنة ست و عشرين و ستمائة خبر فوت ملك سعيد ناصر الدين محمود برسيد بلكا ملك خلجي در ممالك لكهنوتي عصيان آورد و سلطان شمس الدين طاب ثراه لشكراي هندوستان بطرف لكهنوتي بود و در شهر سنة سبع و عشرين و ستمائة آن طاعى را بدست آورد و تخت لكهنوتي بملك علاء الدين جاني داد عليه الرحمة و در رجب همين سال بحضرت جلال دهلي باز آمد ۱۱



Suffice it to say that *Daulat Sháh bin Maudúd* is the person who is spoken of elsewhere as *Ikhtiyár-ud-dín BALKÁ' Khiljî*, and who appears in history on the single occasion of his possessing himself of the kingdom of Bengal on the death of *Náçir-ud-dín Mahmúd*, and his subsequent suppression and capture on the advance of *Altamsh's* forces in the selfsame year, 627 A.H., he was unwise enough to record on his unauthorized coinage.

No. 13. Silver. Size 9½. Weight., 168. *Unique.* Plate x., fig. 9.  
A.H. 627 ?

## OBVERSE.

المستنصر بالله  
امير المؤمنين السلطان  
الاعظم شمس الدنيا و الدين  
ابوالفتح ايلدش السلطان  
برهان امير المؤمنين

## REVERSE.

السلطان  
العادل شهنشاه باذل  
علا الدنيا و الدين ابو الغازي  
دولتشاه بن مودود  
عضد خليفه الله ظهير امير المؤمنين  
Margin— شهر سنه سبع  
عشرين و ستمائة

The reading of *ابو الغازي* is speculative: the letters *العا* are distinct, as are also the two dots of the *ي*, but that latter *itself* cannot be traced, and the visible remains of the character succeeding the *العا* are more like *لي* than the suggested *زي*.

سلطان سعيد شمس الدين چون بديار لكهنوتي رسيد بعد از فوت ملك ناصر الدين

Mahmud Tab Thara' u dafa fathu Malik Ikhtiyar al-Din Balka ۱۶۲  
Calcutta Text, p.

In the printed text, under the *first* Court Circular list of the *اقرباء و ملوك* of *Sultán Shams-ud-dín*, we find the following entry *دولت شاه خلجي ملك لكهنوتي*; and in the *second* document, purporting to be a variant of that official return, we read *بلكا خلجي* (pp. ۱۷۷ and ۱۷۸), which latter version is greatly improved by the Oriental Lord Chamberlain's list preserved in a MS. in the B. M. (Addit. No. 26,189), which associates more directly the *title* with the *name*, and identifies the individual as *ملك اختيار الدين دولتشاه بلكا*.

\* The word *Balká* has exercised the commentators. It may be found, however, in the early Ghaznawí name of *Balká-tigin*. *بلكا* means a "camel colt," and *نگین* is "handsome."





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APPENDIX  
TO THE  
*Journal of the Asiatic Society of Bengal,*  
VOL. XLII,  
PART I., FOR 1873.  
CONTAINING  
VOCABULARIES OF NÁGA HILL TRIBES,  
*by Capt. J. BUTLER and S. E. PEAL, ESQ.*



A Rough Comparative Vocabulary of some of the Dialects spoken in the "Nágá Hills," District.—Compiled by  
Captain JOHN BUTLER, Officiating Political Agent.

The plan I have adopted for designating the long sound of all vowels has been by placing an accent immediately over the vowel; thus á is pronounced like the Italian *a*, or like the English long *a* as pronounced in such words as "mast," "father," "ask," &c.

é like the English *a* in "fate," or *e* in "prey," "convey," &c.

í in like manner has the sound of the French *i*, or English *ee* as in "peep," or *i* as it is pronounced in such words as "fatigue," "marine," &c.

ó as the *o* in "notice"; and finally

ú similarly to the English long *o* as in "move," "prove," &c., or *oo* as in "school," "tool," "fool," &c.

English.	Assamese.	Kachári.	Mikir.	Kúki.	Angámi Nágá.	Rengná Nágá.	Kutchá Nágá.
A, an, or one, <i>a</i> .	Etá,	Sáosi, Mási,	Isi,	Khat,	Po,	Kémmé,	
Abandon (let- go), <i>v</i> .	Eridé,	Háigár,	Honki,	Lhátan, Dhá- létan,	Khásiché,		
Abdomen, <i>n</i> .	Tolpét,	Hoh,	Ipoh,	Koi-Káoi,	Váká, Vádi,	Aghén,	
Above, <i>prep</i> .	Uporot,	Psháo,	U'nhoi,	Chung,	Mho,	Tésho,	
Absent, <i>a</i> .	Gorházér,	Girri,		Aúmhi,	Tomo,		
	Khotiá,						
Abundance, <i>n</i> .	Horoh,	Kébang,	Anúng,	Atúm,	Kia-pézé,	Kéchang,	Kédá
Accept, <i>v</i> .	Loh, Grohon- kor,	Lá,	Ponon,	Látún,	Lélé,	Khilé khé,	Lúlu



Accompany, <i>v.</i>	Logot Já,	Logúthang,	Langlongdúno,	Hengchetang,	Kézétollé,	Hahigákhé,
Accurate, <i>a.</i>	Thik,	Báusi,	Chingbarchit,	Kibang,	Tú,	Kégwénto,
Ache, <i>n.</i>	Bédéná, Bikh,	Sádú,	So-ong,	Anái,	Chi, Shi,	Thébénio,
Acid, <i>a.</i>	Téngá,	Mikhri,	Háuthor,	Thé,	Kroh, Khié,	Késhang,
Acquaintance, <i>n.</i>	Sinákí,	Bussáo, Mithi-ré,	Nidou,	Kéhét-ngái,	Késimá, Ur-chimá,	Kenthonmé,
Advance, <i>v.</i>	Ág-bo,	Ségangjá,	Áphráng,	Mashatun,	Rále,	Régatá,
• Advantage, <i>n.</i>	Lábh,	Lábh,	Aláp,	Alép,	Mévi,	Ákurraché,
Adversary, <i>n.</i>	Hotrú,	Sotrú,	Arléng hingo,	Migilo,	Kéngúma,	Phinimú,
Adult, <i>n.</i>	Déká,	Nágá,	Rissomár,	Thungwál,	Khisáma,	Ponniu,
Adze, <i>n.</i>	Sins,	Gaphá,	Sát,	Hékhupga,	Kethi,	.....
Afar, <i>ad.</i>	Dúroi,	Kajain,	Heloving,	Alá, Gumlapi,	Sháchá,	Kéthang,
Affection, <i>n.</i>	Isto,	Hamthi,	.....	Alungshie,	Khré,	.....
Affray, <i>n.</i>	Kilá-kili,	Choslágbá,	Chichok,	Akidélui,	Kevo,	Kégá,
After, <i>prep.</i>	Pásot,	Yaonghúnga,	Aphi,	Núngsung,	Sá,	Shéki,
Afternoon, <i>n.</i>	Abéli, or Bha-tibéla,	Samliha,	Anibéng,	Nisaagéhitai,	Thékhéva,	Sungweméso,
Again, <i>ad.</i>	Ákáo, or Pu-norai,	Arúráng,	Apár,	Húmbolkhir,	Lá,	Hiangwo,
Age, <i>n.</i>	Boyoh,	Hajaiba,	Nikúnkun,	Nésuna,	Képénótá,	Chán,
Aged, <i>a.</i>	Burá,	Karrásá,	Sarbúrta,	Téhsi,	Kétchá,	Péthiniu,
Ague, <i>n.</i>	Konp-jor,	Lémbá,	Sodét Kéch-ung,	Akilot,	Kipé,	Luvénio or Ru-vénio,
Air, <i>n.</i>	Botáh,	Bár,	Timon,	Húi,	Timelhu,	Chembé,
Alike, <i>ad.</i>	E'ké-likhiá,	Baúshilái,	Chinlidong,	Múmkhutto-bang,	Kémhá,	Altháágwén-to,
Alive, <i>a.</i>	Jiá,	Gathang,	Akering,	Abing,	Rhi,	Akérhung,
All, <i>a.</i>	Átái,	Khrúp,	Kédoh,	Abonin,	Pété,	Ataung,
						Haimná



English.	Assamese.	Kachári.	Mikir.	Kúki.	Angámi Nágá.	Rengmá Nágá.	Kutchá Nágá.
Alligator, • <i>n.</i> Ghoríál, Almighty, <i>a.</i> Hokoloré-hok- ti,		Géné, Khoribjong- boldong,	Timong, thé- Aiakúng	Wallé,	Rá, Klokérrá, Petekiké me- chiashe,	Kérrá, Atháké árhé- nia,	
Alone, <i>a.</i> Okol, Aloud, <i>ad.</i> Borkoi, Also, <i>ad.</i> Áró, Altogether, <i>ad.</i> E'ké logé, Always, <i>vd.</i> Hodái, Oréo, Nito,		Sáojang, Ráohi, Ar, Gáthaisi, Nállé,	Inúna, Yásomét, ..... Kédokávé,	Kutchung, Hápinsétum, ..... Númkhat, .....	Thé, Rébi, Rékré, Ri, Pété-Kézé, Té-sonhá,	Mémé, Empú Unré, Kézong, ..... Kechang, .....	
Amid, <i>prep.</i> Maj, majat, An, a, one, <i>a.</i> E'tá,		Gajér, Sáosi, mási,	Angbong, Inunan or Inút,	Aláilung, Khat,	Métcho-mi, Pó,	Azogá, Kémmé,	Kát
Ancle, <i>n.</i> Bhorir gánthi, And, <i>conj.</i> Áró, Anger, • <i>n.</i> Khong, Annually, <i>ad.</i> Bosoré-bosor,		Yasuthái, Ár, Thámsi, Maithai-mai- thai,	Kéhangbi, ..... Nimingthip, Aninkan-anin- kan,	Kaokhimit, ..... Alúngsáahi, Kúmkhút, Kumni,	Phimhi, Ri, Nimo, Tichiképrá,	Phabéro, ..... Aionkhé, Achang,	Dé
• Ant, <i>n.</i> Porúá, Ant-hill, <i>n.</i> Hápholo,		Khashima, Horimá-há- phlo,	Misú, Téplong-ánú- rák, Isi-isi,	Shingshang, Léwangin,	Mháché, Repá,	Tenta, Unpiong,	Ntiéná
Apiece, <i>ad.</i> E'tá-étá,		Mási-mási,	Kárpú, Roi, Jing káp,	Khut-chiang- khut-chiang	Po-po,	Kémé-kemé,	
Armadillo, <i>n.</i> Kémtai, Armlét, <i>n.</i> Khárá, Armpit, <i>n.</i> Kákhloti, Bo- gol,		Kháutai, Yáoshér, Phám-khor,		Sephú, Nathankul, Kájanui,	Tépphu, Kétho, Sochú,	Tépphé, Gi, Ániobsong,	Héppá







English.	Assamese.	Kachári.	Mikir.	Kúki.	Angámi Nágá.	Réngmá Nágá.	Kutchá Nágá.
Bark, (of a tree)	<i>n.</i> Sál,	Pongúr,	Théngú,	Thingoh,	Pokú, Sijha,	Sháinhél, or Shingél,	
Bark,	<i>v.</i> Bhúnk,	Shongmá,	Kánú,	Ahup,	Ré-shi,	Kérúan,	
Barn,	<i>n.</i> Bhonráli ghor,	Mainoh,	Sokporú,	Changin,	Telha-ki,	Tiswán,	
Barrel, (gun)	<i>n.</i> Nolli,	Nolli,	Allangpong,	Meipumlong,	Pú,	Pong,	
Barter,	<i>v.</i> Hóláo,	Salai-jalainú	Chilárná,	Kilhénghété,	Kélli,	Kélléché,	
Basin,	<i>n.</i> Kanhi,	Khophrá,	Kású,	Kúng,	Mékhú,	Túkhong,	
Bastard,	<i>n.</i> Johorrah,	Paupik péssá, or Pophá-giri-yába, péssá,	Sorongro,	.....	Tékhrono,	Kéohlángnin,	
Bat,	<i>n.</i> Bádoli,	Taupámá,	Wárlak,	Késiltum,	Ché-chá,	Sémphong,	Téllá
Bathe,	<i>v.</i> Gá-dho, or Snáankor,	Digrúnang,	Chinglúji,	.....	Zúrélúché,	Lahté,	Dúpía
Battle,	<i>n.</i> Ron,	Chéba,	Ron,	Gál,	Térri,	Térri,	Hérnéo
Beak,	<i>n.</i> Thont,	Bokho,	Anktúr,	Amú,	Ta,	Méng,	Múi
Beam,	<i>n.</i> Sóti,	Súkúr	Kárdong,	Inkum,	Ki-pér,	Kásun,	Hégúam
Bear,	<i>n.</i> Bhálúk,	Mússúbromá	Thogwám,	Vompi,	Thégá,	Thágúá,	Múmai
Beard,	<i>n.</i> Dánri,	Khámphor,	Múng,	Khámul,	Támá, Mekh-wémá,	Mangha,	
Beat,	<i>v.</i> Kúbáo, Már,	Sho,	Choknún,	Votun,	Vúché,	Vúché or Vútá,	Ngáu-ida
Beautiful,	<i>a.</i> Húndor,	Naibahami,	Méong,	Védi náphai,	Ngú-kévi,	Gwáswá,	
Bedstead,	<i>n.</i> Húa-khát,	Thúthani,	Ki-iádim,	Jáikhun,	Thézi,	Nang, Long,	
Bedding,	<i>n.</i> Túli,	.....	Káchlimápé,	Ponphá,	Zikhra,	Zikéshénghé,	Jéokum
Bee,	<i>n.</i> Mo,	Péréká, or Pé-Pio, ré,	Pio,	Húivá,	Mékhwi,	Lhui,	Héliá



Beef,	<i>n.</i>	Gorúrmongoh,	Méshoháin,	Cháinongáok,	Shilbutshá,	Mithúchi,	Ménthútha,
Before,	<i>prep.</i>	Agot, Hamú-Sékang,		Aphráng,	Mésang,	Mobzú,	Hodi,
Beg,	<i>v.</i>	Mañg,	Sainji,	Chúháng,	Thúménétun,	Krohchiléché,	Hétah, Hélo-
Beggar,	<i>n.</i>	Mogonia,	Sainjiába,	Kédúkébáng,	Miváicha,	Kroh-kéchi-	tah, Hékatániu,
• Behind,	<i>prep.</i>	Pisot, Pásot,	Yáonhúng,	Aphi,	Núnglam,	Sáchá,	Shégi,
• Behold,	<i>v.</i>	Dékh, Sá,	Nái,	Lágnún,	Vetún,	Pilé,	Phítá,
Belch,	<i>v.</i>	Hínkotí kor,	Hánglúngmu-	Ijoi,	Kasaie,	Pékhé,	Kénja,
			mainbá,				
Bellow,	<i>v.</i>	Béba,	Kérrábá,	Kángrong,	Sélábú,	Moché,	Kángha,
Belly-ache,	<i>n.</i>	Bét-kámor,	Hohsádú,	Apoksodet,	Káowai onái,	Vadiché,	Ghéntha,
Belly,	<i>n.</i>	Pét,	Hoh,	Apok,	Káowai,	Vádi, Váká,	Ghén,
Below,	<i>ad.</i>	Tolot,	Paklá,	Abér, Arúm,	Anoi,	Kho, Khro,	Téshang,
Belt,	<i>n.</i>	Tongáli,	Chishidao,	Ari,	Kongkáná,	Séshá,	Sangkúrérng,
Bend,	<i>n.</i>	Pák, Mosor,	Pháikhong,	Pékéknún,	Hékontun,	Kéréguilé,	Akéngkhúi,
Best,	<i>a.</i>	Utóm,	Hándáo,	Jérsomémo-	Aphápéntá,	Kévithou,	Athaiángwá-
				chot,			shwá,
Better,	<i>a.</i>	Táttoi bhál,	Késsá-hám-	Jérsoméong,	.....	Sésá Kévi,	Hiángwhá,
			dáo,				
Between,	<i>prep.</i>	Majot,	Kéjar,	Angbong,	Alaiúlúng,	Donú, Metcho-	Káká
Beware,	<i>v.</i>	Háodhán-ho,	Tátháng,	Phréremá,	.....	Chiswéléché,	.....
Big,	<i>a.</i>	Dāngor,	Tébi,	Théong,	Léupiahi,	Kézá,	Kéáng,
Bill-hook,	<i>n.</i>	Dáu,	Shishong,	Nokpák,	Chimpong,	Jé,	Jhén,
Bind,	<i>v.</i>	Bāndh,	Khá,	Koknún,	Kántan,	Phalé,	Phénogotá,
Bird,	<i>n.</i>	Sorái,	Tao,	Vo,	Vachá,	Péra,	Téga,
Birth,	<i>n.</i>	Jonom,	Gokhá, Hájai-	Amangáthé,	Naoasowé,	Péno, Képéno,	Niubénio,
			bá,				Rhinna



English.	Assamese.	Kachári.	Mikir.	Kúki.	Angámi Nágá.	Réngmá Nágá.	Kutchá Nágá.
Birth-place, <i>n.</i>	U'pojá-thai, or Jonomo- bhúmi,	Hájaiba, Ha- thani,	.....	.....	Képénophé,	Kénuphén,	
Bitch, (female of dog.) <i>n.</i>	Máiki Kúkúr,	Sémájúk,	Mithunapi,	Winú,	Phúkrr,	Téhiphú, or Téhitenin,	
Bite, <i>v.</i>	Kámor,	Wái,	Kornoi,	Petún,	Méki,	Unkáté or Un- káché,	Nki
Bitter, <i>a.</i>	Títá,	Khábi,	Akého,	Akhái,	Kékú,	Kéká,	Ketibé
Black, <i>a.</i>	Kólá,	Késhim,	Akéik,	Avom,	Kéti,	Kéché,	Michiépe
Blind, <i>a.</i>	Kóná,	Kána,	Amikávé,	Mitcho,	Mhichié,	Hékécháng,	Hézái
Blood, <i>n.</i>	Téz,	Théi,	Ávi,	Thi,	Thézá, [bébá,	Tézié,	Mápá
Blossom, <i>n.</i>	Koli,	Khém,	Mir,	Ámumbim,	Puniba, or Thé-	Mién,	
Blow, <i>v.</i>	Phúñ-dé,	Shú,	Kibút,	Mútun,	Mhélé,	Téshi,	
Blue, <i>a.</i>	Kám boroniá,	.....	.....	Adumé,	Loshi,	.....	Nizai
Board, <i>n.</i>	Pát,	Bongflong,	Kápát,	Thingphél,	Méla, Sobja,	Shénpáng,	
Boat, <i>n.</i>	Náo,	Rong,	Tillong,	Koung,	Rú,	Rúng or Rong,	Liámkúa
Boatman, <i>n.</i>	Náoworia,	Rongjáoyábá,	Tillongkévé,	Koungiábho,	Rú kethumá,	Rúngécho,	Liam-Ketsaimi
Body, <i>n.</i>	Gá,	Sáo,	E'áng,	Kati,	Moh,	Meh or Um- mén, Und-	Méo
Boil, <i>v.</i>	U'tolái de, or Hjái dé,	Méthonghá,	Karklok,	Go-omsán,	Mékhrolé,	wávéshe,	
Bold, <i>a.</i>	Háhiál, or Nir- bhoi,	Bakharobi,	Phéréré,	Kékichapúi,	Kérézá,	Kémé késsa,	
Bone, <i>n.</i>	Hár,	Pákrain,	Répi,	Shágú,	Rú,	Thirra,	Rá (Péra)
Book, <i>n.</i>	Púthi,	Khitáp,	Khitáp,	Léká,	Léshi,	Láshi,	Léshú
Boot, <i>n.</i>	Jútá,	Jútá,	Kengok,	Kéng-ko,	Phikú,	Pházaka,	
Borrow, <i>v.</i>	Dhár-kor,	Jáolá,	Rámnún,	Athunginlá- tun,	Thépulé,	Tépuréta, or Tépéréta,	



	Tol, Gúri,	Pákhá,	Abér,	Atókú,	Khro,	Téshingí,	Hérrai
Bottom,	n. Dál,	Bondé,	Aro,	Théngbá,	Si Chié, Sicho,	Shémphá,	Héllé, Piar
Bough,	n. Himá,	Hárrí,	Ahoí,	Gichap,	Thérá,	Térré,	
Boundary,	n. Dhénú,	Chilli,	Battli,	Gophél,	Thilla,	Lobú,	
Bow,	n. Nari-bhunrú,	Púbú,	Phég,	Kágil,	Poriá,	Ré,	
Bowels,	n. Péri,	Sundú,	Pirá,	Théng kong	Kúzo,	Pirá,	
Box,	n. Lorá,	Arsá,	U'sú,	Chápang,	Nichumá,	Unchamin,	Hénami
Boy,	n. Khárú,	Khádú,	Roi,	Cháu,	Yétsé,	Pén,	Hétá
Bracelet,	n. Múror ghiun,	Bithlim,	Atarlob,	Llobú,	Khrú,	Sha or U'nsha,	Khúá
Brains,	n. Pitol,	Phislé,	Bitol or Bitoi,	Shuméng,	Méréni,	Péngi,	Pitalaigéo
Brass,	n. Potháli,	Kébéng,	Arpún,	Avaiyalin,	Zá, Poza,	Ádá,	
Breadth,	v. Bháng or Sing,	Sépaihá,	Phlangúnón	.....	Béswélé,	Voségo,	
Break,	n. Hiya, Búkú,	Khábo,	Ning,	.....	Mérr,	Miong,	Káká
Breast,	n. U'háh,	Háng,	Ángghoágh- win,	.....	Há,	Untéshi,	
Breathe,	v. U'kháh lo,	Hánglabú,	Echéthé,	Léi	Há shiché,	Untéshi théta,	Kepúm
Bridge,	n. Dolong,	Dolong, Yao- khrai,	Dolong,		Péh,	Long,	
Bring,	v. Án,	Labú,	Wanún,	Honehoitan,	Séphiri, Pé- khor,	Séngrotá,	Pépélo
Broad,	n. Bohol,	Kétho,	Héong,	.....	Méjá,	Kezang,	
Broad-cloth,	n. Bénat kápor,	Banor-ri,	Mánát á pé,	.....	Bulá-Khwé,	Bánaphé,	
Broken,	part. Bhángá or Singá,	Páikhá,	Lokpé,	Akéatai,	Vaphroá, Bét- swéwá,	Akése,	
Broom,	n. Barhoni,	Naoship,	Arphék,	Munthé,	Nizwéro,	Kázékha,	Sosingbé
Brother (el- der,) n.	Kokái,	Dádá,	Niik,	Káupá,	Zoráo,	Ságah,	
Brother,	n. Bhái,	Jányang,	Nimú or	Kánaupá,	Sázéo,	Sézhing áhor,	Sárebé
(younger) n.		Adong,	Nékor,	.....		Sezhingé,	
Brother-in- law,	n. Jéthéri,	Aghnu,	Némé,			Amú,	



English.	Assamese.	Kachári.	Mikir.	Kúki.	Angámi Nágá.	Réngmá Nágá.	Kutchá Nágá.
Brow, <i>n.</i>	Konpál,	Tháin,	Téhang,	Kédéápáng,	Tikhá,	Samboh,	Kési
Buck, (deer) <i>n.</i>	Mota pohú,	Chéllá,	Thiókalo,	.....	Tékluá-poshi,	Téshangpécha,	
Buffalo, <i>n.</i>	Moh,	Missép,	Jilong,	Loi,	Rélli,	Sainchong,	Rélli
Build, <i>v.</i>	Hojá,	Tángná,	Kimnun,	Sátan,	Siléché,	Thélotá,	Télo
Bull, <i>n.</i>	Hár, Bhotorá,	Mesu-jéllá,	Cháimongalú,	Bongchul,	Thúdo,	Máuthé,	Ké túmséo
Bullet, <i>n.</i>	Goli, Gúli,	Golli,	Golli or Amú	Mechang,	Mishi-shi.	Páché,	Hégebaichi
Bundle, <i>n.</i>	Topolá,	Páko,	Abor,	Ponchun,	Kéri,	Golli,	
Burden, <i>n.</i>	Bhar,	Papain,	Bhár,	.....	Pé,	Adúá,	
Burn, <i>v.</i>	Porá, [Phútá	Sáohá,	Kanon,	Ghaltun,	Réwala, Pétú-	.....	
Burst, <i>v.</i>	Phútái dé,	Pérékhokla,	Phúkdak,	.....	Baphroá, Pro,	Rolota,	
Bury, <i>v.</i>	Pót,	Phabá,	Pibnon,	Gáphútun,	Khrúalé,	Shonko,	
Butterfly, <i>n.</i>	Pokhila,	Tamá,	Pipling,	Péngpilép,	Sopro,	Asa,	
Button, <i>n.</i>	Gúdám,	Gútám,	Gúdám,	Shankhokil,	Bulla-Kékú,	Gúdám,	
Buy, <i>v.</i>	Kin,	Pará,	Námnun,	Chútán,	Khri-léché,	Hilota,	Lúlulo
By-and-by, <i>ad.</i>	Athoni,	Yaokhúng,	Mo-áphi,	.....	.....	.....	
Bird cage, <i>n.</i>	Soráior hojá,	Khangkhá,	Vo-úm,	.....	Yá,	Térrékhén or	
						Togakhen,	
						Ménthinio,	Kétumpuina
						Chén,	
						Kolokottá,	Kúlo
• Calf, <i>n.</i>	Dámúri,	Mésopéssá,	Chainongáso,	Chilutmi,	Mithúno,	Terra,	Daria
Calf-(of leg,) <i>n.</i>	Kol phúl,	Yákithú,	Sárti,	Kátangái,	Phitsá,	.....	Higibé-kedibé
Call, <i>v.</i>	Mát,	Longhá, or	Hángnún,	Gákotun,	Késhi-ché,	Pithong,	Potchom
		Chirhúikhá,					
		Rái,	Pri,	Ting,	Thér,		
Cane, <i>n.</i>	Bént,	Kámon,	Bortope,	.....	Sidi,		
Canon, <i>n.</i>	Bor Tóp,	Topi,	Photú,	Lúkhú,	(Misi kédí, <i>i.e.</i>		
Cap, <i>n.</i>	Túpi,				great gun,) Churé,		



Carry,	v. Búk, Boja lo,	Horbá,	Inghornon,	Potan,	Poulé,	Pvulotá,	Pélo
Cat,	n. Mekúri,	Mú,	Méng,	Méngté,	Munno,	Ái,	Hanina
Catch,	v. Dhor,	Rém,	Niébnún,	Mántún,	Télé,	Ténota,	Tulo
Caterpillar,	n. Bisá,	Yongshimá,	Unki,	Lúngmúl,	Chopé,	Pongi,	
Centipede,	n. Sélá,	Sénthrékomá,	Lútiki,	Chingling,	Zárr,	Sémbé,	
Chaff,	n. Ghúlá,	.....	.....	.....	Phá,	.....	
Chain,	n. Hikoli,	Jingiri,	Ghainhemáre,	.....	Kédú,	Bengriso,	
Change,	v. Holoni kor,	Shlainúng,	Chilarnung,	.....	Kélilé,	Kéléla,	
Charcoal,	n. E'ngár,	Hángár,	Hogwái,	Méhol,	Mijé,	Mégi,	
Chase,	v. Khéd,	Rúphái-rú- phaintha,	Húngdonon,	Dilijitun,	Holé,	Hagatá,	
Cheap,	v. Hostá,	Pángiá,	Mélo,	Aménédong,	Méli,	Gwáso,	Lalé
Cheek,	n. Gál,	Khaolái,	Om,	.....	Jwé, Jo,	Riáto,	Biá
Chicken,	n. Kúkúra púáli,	Diopésá,	Voáso,	Anúsén,	Thévno,	Térreno,	Hénámi
Child,	n. Lorá,	Anchá,	Oso,	.....	Nichúná,	Anin,	
Chin,	n. Thontorá or Thútori,	Khoshika,	Bip,	Kékhlang,	Mékho,	Soko or Sokhe,	
Civet Cat,	n. Géndérá,	Múru,	Kethoi,	Sángá,	Thékrr,	Khonjú,	Shéhi
Clap,	v. Sápóri bojá.	Támá,	Chendép,	.....	Bidá,	Inbákhé,	
Claw,	n. Nók,	Yáoshúkór,	Ri,	.....	Phitché,	.....	
Clean,	n. Sophá, Nirmol,	Hámkhá,	Mésénlo,	Angúnshé,	Mésá,	Gwa,	
Cleave,	v. Phál,	Phikháobá,	Képú,	Kénishútun,	Phrolé,	Diokhologotta,	
Cloth,	n. Kápor,	Réi,	Pé,	Pon,	Khwé,	Phé,	
Cloud,	n. Mégh, Dáor,	Kolkhubá,	Inghon,	Méi,	Kémhú,	Khella-Késsi,	
Cobweb,	n. Mokorár jál,	Pémankhuno,	Aram,	Ápán,	Séréchá,	Hántéroka,	
Cock,	n. Motá Kúkúra,	Dáojéllá,	Volo,	.....	Votzu,	.....	
Cold,	n. Sénsá,	Késhánmé,	Kánsám,	Adupnávé,	Mekú, Si,	Shéshé, Kong,	
Cold season,	n. Járkál,	Máising,	Níngkreg,	Phálbi,	Tisi,	Chiéshé,	
Come,	v. Ah,	Phái,	Vánguún,	Hongtun,	Phirché, Vor- ché,	Rotah or Ku- lokotta,	
Comprehend, v. Búipá,		Méthilá,	Arjúnon,	Néhnáám,	Siléché.	Réchénphtá,	





English.	Assamese.	Kachári.	Mikir.	Kúki.	Angámi Nágá.	Réngmá Nágá.	Kutchá Nágá.
Conceal, .	v. Lúkúá,	Hoidádén,	Chipátúnón,	Gashéltun,	Kéváléché,	Kébéleché, or Kébélegot- tá, Vánlogottá, ..... Rénganú, Amén, Chopsa, Chot- Téphú,	
Cook,	v. Hjúá,	Shong,	Túnón,	Hontán,	Sháléché,		
Copper,	n. Tám,	Tám,	Tám,	Shomshún,	Páisáji,		
Cord,	n. Jorí,	Wátú,	Phámri,	Kháohúl,	Kérré,		
Cost,	n. Dám, Dor,	Péshén,	Ador,	Amún,	Pomá,		
Cotton,	n. Kopáh,	Khún,	Phélló,	Patbo,	Chopsa, Chot- sá,		
Cover,	v. Dhák,	Tháphúnátun,	Limnón,	Khúkhúntun,	Whéshiché,	Shénótá,	
Count,	v. Lékh, Gononá-Sain,	Lékhánún,	Lékhánún,	Shimtémin,	Phréléché,	Phúlo-gotá,	
Cow,	n. Gorú,	Meshojo,	Chainong ápi,	Chilhatnún,	Thukr,	Ménthainio,	Kétum pui
Cow-dung,	n. Gabor,	Méshokhi,	Cháinongáhi,	Chilhaté,	Mithúbo,	Ménthébu,	
Coward,	n. Bhoiátúr,	Khéníabásé- bong,	Phénéong,	Minédói,	Kémithiná,	Unthúbinio,	
Cowree,	n. Kori,	Kháodi,	Súbai,	Lúngchung,	Késa,	Táshí,	
Crab,	n. Kénkorá,	Kháng-Khráí,	Chéché,	Ái,	Ségo,	Chégú,	
Crazy,	a. Boliá,	Kébir,	Angchámdú,	Mingolahi,	Kéloho, Kén- wémá,	Kénoiniu,	
Crooked,	a. Bénká,	Kokúí,	Kékdáng,	Akon,	Kéréngwi	Khurá,	Héga
Crow,	n. Káuri,	Dáokhá,	Voák,	Vá-ú,	Shíja,	Tégú,	
Cry,	v. Kánd,	Kérrádé,	Chirúnót,	Káptan,	Kralé,	Chilota,	
Cubit,	n. Hát,	Khújalá,	Echák,	.....	Thú,	U'nká,	
Cup,	n. Báti,	Phongtho,	Harlong,	Vaulhéng,	Télbi,	Hánpén,	[gotta,
Custom,	n. Dostúr, Niom,	Tará,	Aron,	.....	U'zié,	Déta or Délo-	
Cut,	v. Kát,	Tain,	Thúnón,	.....	.....		



Daily,	<i>ad.</i> Diné-diné,	Saiphrim,	Ármi,	Nisé Nisé,	Tisonhá,	Achungabán,
Dance,	<i>v.</i> Nás,	Pái,	Kánnon,	Gálámtun	Kéhúchié,	Náshita,
Dark,	<i>a.</i> Andhár,	Anár,	Ingtingtanglo,	Ngúpémé- moté,	Tinginkosho,	.....
Daughter,	<i>n.</i> Jiék,	Shio,	Sopi,	Chánúng,	Nopvu,	Nío,
Day,	<i>n.</i> Din,	Sáin,	Árni,	Súnlai,	Kínhí,	Héka,
Dead,	<i>a.</i> Morá	Thekha,	Gé-Thingtanglo,	Athitai,	Satálé, Késsá,	Shégozo,
Deaf,	<i>a.</i> Kolá,	thei,	Nothong,	Nangong,	Poniorogúwé,	Sémúa,
Dear	(cost- ly),	Náthong,	Adórsóong,	Amánahájien,	Répézé,	Aminchén,
Deer,	<i>a.</i> Pohú,	Méi,	Thiok	.....	Tékhiá,	Téshang,
Descend,	<i>n.</i> Nám,	Nokhai,	Nanghirnon,	Honkúmtan,	Lákerlé,	Chéngrotá,
Devil,	<i>n.</i> Rákhiob,	Motainhainy- an,	Arnambingo,	Thilbagilo,	Térho Késho,	Terrogagwé,
Dialect,	<i>n.</i> Dúán,	Karráo,	Alám,	.....	Nekhwé,	Khwen,
Difficult,	<i>a.</i> Tán,	Haniájákhá,	Abidi-thekté- lo, or Boyong,	.....	.....	Aputengheng- sho,
Dig,	<i>v.</i> Khánd,	Cháo,	Túgnon,	.....	Thé,	Sologóttá,
Dirty,	<i>a.</i> Moilá,	Doshimi,	Térong,	Anéndédúí,	Kérhú,	Hiongbah,
Disease,	<i>n.</i> Rog, Bémár,	Léondo,	Késo,	.....	.....	Gwamo,
Distant,	<i>a.</i> Dúr,	Cháimbí,	Hilohong,	.....	Shá-chá,	Kejagi.
Ditch,	<i>n.</i> Lúr,	Hadírong,	Lonchor,	.....	Zú-rishádú,	Tégilo,
Divide,	<i>v.</i> Dú bhág kor, Phál,	Ronjélainon,	Chétháknon,	.....	.....	Kénjinogottá,
Dog,	<i>n.</i> Kúkúr,	Shissá,	Méthun,	.....	Téfoh,	Téhi,
Door,	<i>n.</i> Dúár,	Térká,	Ungáp,	.....	Ki-Khá,	Kákhén,
Dove,	<i>n.</i> Kópó,	Dáothú,	Vothung,	.....	Mokhrú,	Insha,
Drag,	<i>v.</i> Súsúrá,	Sháin,	Vongnon,	.....	Ki,	Shilotá,
Drink,	<i>v.</i> Khá,	Lúng,	Túngláng,	.....	Krá,	Chilogottá,

Hétóhí





English.	Assamese.	Kachári.	Mikir.	Kúki.	Angámi Nágá.	Réngmá Nágá.	Kutchá Nágá.
Drum,	<i>n.</i> Dhol,	Khrám,	Chéng,	.....	Kébbá,	Bén,	
Drunk,	<i>a.</i> Motoál,	Poglájabá,	Hongangri,	Kémézá,	Injévémon,	.....	
Dry,	<i>a.</i> Húkán,	Ráinkhá,	Akréng,	.....	Késsá,	Akénkoh,	
Dry,	<i>v.</i> Húkúá,	Karrainkhlai,	Khréngnon,	.....	Só,	Phologottá,	
Dung,	<i>n.</i> Gú,	Khi,	Hi,	.....	Bo,	Abú,	
Dysentry,	<i>n.</i> Khor,	Hoshábá,	Képávi,	.....	Thézá-bo,	.....	
Ear,	<i>n.</i> Kán,	Khámáo,	E'no,	.....	Nié,	Nítun,	
Earring,	<i>n.</i> U'ntí,	Kherri (for male), Kho-metái (for female),	Nothengpi, and Nori, and Keding-chingro,	.....	Rénni (for males), Ni-so, (for females),	Umbén (for males), Té-binié (for females),	
Earth,	<i>n.</i> Prithibi, Máti,	Há,	Longlé,	.....	Kízi,	Kázi,	
Earthquake,	<i>n.</i> Bhúinkonp,	Pánglá,	Chikáli,	.....	Kiéki,	Chingánié,	
East,	<i>n.</i> Púv,	Sáimphnébá,	Niháng,	.....	Náki-kéthú-chá,	Hékapi,	
Eat,	<i>v.</i> Khá,	Chi,	Choláng,	.....	Chi,	Túlogotta,	
Egg,	<i>n.</i> Koni,	Dáoti,	Voti,	.....	Dzo,	Di,	
Eight,	<i>a.</i> Áth,	Chái,	Nirkép,	Ghit,	Théthá,	Tassé,	Héssa
Eighteen,	<i>n.</i> Othéro,	Mágichái,	Khrénérkep,	.....	Mékú-pomothéthá,	Kipúmtassé,	
Eighty,	<i>a.</i> Ási,	Pishábri,	Throknirkép,	Shomghit,	Lhé-théthá,	Hain-tassé,	Rhé héssá
Elbow,	<i>n.</i> Kilákúnti,	Yáoshúkong,	Eritúngdé,	.....	Bútú,	Khoshé	
Elephant,	<i>n.</i> Háti, Hánti,	Méyung,	Ingnár,	.....	Chú, Tsú,	Piong,	Heppúa
Eleven,	<i>a.</i> E'gháro,	Májishé,	Kré-isi,	Shom-le-khat,	Kerr-o-po,	Sérrah-kame-sha,	Kéké
Evening,	<i>n.</i> Godhúli,	Sárriri,	Ningvétung,	Hojinkon,	Théva,	Téugémésó,	
Eye,	<i>n.</i> Sokú,	Mhú,	Mék,	Mit,	Mhi,	Nghé,	









English.	Assamese.	Kacháři.	Mikir.	Kúki.	Angámi Nágá.	Réngmá Nágá.	Kutchá Nágá.
Fish,	<i>n.</i> Más,	Ná,	Lángok,	Ngá,	Kho,	Diniú saha,	
Fish-hook,	<i>n.</i> Borokhi,	Phishá,	Arpi,	Ngá-kui,	Khostégwí,	Hekhúbú,	
Fishingrod,	<i>n.</i> Brokhiánri,	Pishaphéng,	Arhiápúl,	Apó,	Khosési,	Késhibú,	
Five,	<i>a.</i> Páns,	Wá,	Phúngo,	Ngá,	Péngú,	Púng,	Méng ai
Flat,	<i>a.</i> Homán,	Shoniaibi,	Kéklám.	Akibáng,	Mézi,	Jéjángméné,	
Flint,	<i>n.</i> Páthor,	Wáiding,	Árlong,	Shúng,	Jipvorú,	Cho,	
Flower,	<i>n.</i> Phúl,	Khúem,	Mir,	Pácha,	Ménipú,	Nién,	
					Nhapú,		
Fly,	<i>v.</i> U' r,	Pénilang,	Iniornoi,	Léngtán,	Proché,	Giénlotta,	
Fog,	<i>n.</i> Kúnoli,	Kúál,	Inghún,	Améi,	Kembú,	Khélgéssi,	
Foot,	<i>n.</i> Bhorí,	Yáká,	Ekéng,	Kakéng,	Phi,	Phá,	
Forefinger,	<i>n.</i> Bámún angúli,	Yáoshi,	Múnjong,	Kakhútchal,	.....	Jongú,	
Forehead,	<i>n.</i> Koypál,	Tháin,	Téhang,	Kadéapang,	Tikha,	Insompú,	
Forest,	<i>n.</i> Káthoni,	Hakra,	Ingnám,	Gánang,	Si, Nhá,	Tére, héu,	
Forgive,	<i>v.</i> Khémákor,	Dákhlaishi,	Pédolánang,	Elúngshianin,	Khásiché,	Khigotta,	
Forget,	<i>v.</i> Pahor,	Plao,	Tengnedet,	Háitan,	Rékra motá-	Shángósha,	
					ché,		
Formerly,	<i>ad.</i> Táhani, Púrbé,	Shikághá,	Hakoké,	.....	Kériáki,	Nháka,	
Fort,	<i>n.</i> Kónth,	Khórong,	Korkébui,	Kúl,	Kúdá,	.....	
Fortify,	<i>v.</i> Konth-mara,	Khórongká,	Korbuinon,	.....	.....	.....	
	or Gor-dia,						
Forty,	<i>a.</i> Solis, Dúkúri,	Pishágni,	Phili-kép,	Shom-li,	Lhidá,	Hainghé,	Rhédai
Four,	<i>a.</i> Sári,	Mábri,	Phili,	Ll, Li,	Dá,	Kéjhé,	[ché Médai
Fourteen,	<i>a.</i> Choidho,	Magibri,	Kréphli,	Shomléli,	Kerr-o-dá,	Sánnépéggé-	
Fowl,	<i>n.</i> Kúkúra,	Daono,	Vo,	Áchá,	Théva,	Térré,	
Friend,	<i>n.</i> Mitá,	Khápiong,	Edonéráp,	Kájol,	Aso,	Kámé,	
Frog,	<i>n.</i> Bég,	Imbrú,	Chongho,	U'keng,	Gwirno,	Ságge,	



Front-door, <i>n.</i>	.....	Nosékántékra,	Hongthúang- háp,	Kot-pi,	Ki-Khá,	Kákhén,	Hammoi
Fruit, <i>n.</i>	Gúti,	Bokrong,	Athé,	Thingá,	Shi,	Térráshá,	
Gall-bladder, <i>n.</i>	Pitt,	Pokhlú,	.....	Ihing,	Thésieh,	.....	
Ginger, <i>n.</i>	E'já,	Hájing,	Hánsopi,	Númé,	Kévú,	Gasen,	
Girl, <i>n.</i>	Sóali,	Péhi,	Arlúso,	E'pén,	.....	Tanienu,	
Give, <i>v.</i>	Dé,	Ri,	Pinon,	Chétan,	Chi-shi,	Lopimú,	
Go, <i>v.</i>	Já,	.....	Damnún,	Kélehá,	Toté,	Gokhé, Gotá,	
Goat, <i>n.</i>	Ságoli,	Brén,	Ví or Bi,	Pathénlúnjái,	Tanen,	Tami,	
God, <i>n.</i>	Iswor, Déo,	Mattai,	Arnám,	Soná,	Térro-diú,	Térrogha,	
Gold, <i>n.</i>	Hón,	Kacháo,	Sér,	Náchákáng,	Soná,	Honúngi,	
Good, <i>a.</i>	Bhál, Báru,	Hámbeí,	Méong,	.....	Kévi,	Gwá,	
Goose, <i>n.</i>	Rájhánh,	Daophlando- haiung,	Vopitunga,	.....	Tophá-Kedi,	Tophá Kédági,	
Grand-father, <i>n.</i>	Koká,	Ajú,	Thú,	Hépú,	Apúchá,	Abáng,	
Grand- mother, <i>n.</i>	Buri Ái,	Abi,	Phi,	Hépi,	Acháp fú, or Azápú,	Athi,	
Grandson, <i>n.</i>	Náti,	Chathai,	Isúpo,	Kátú,	Nono,	Aninga,	
Grand- daughter, <i>n.</i>	Nátini,	.....	Isúpi,	Katúnú,	Nokimá,	Aniu-gi,	
Grass, <i>n.</i>	Ghánh,	Sham,	Tipli,	Hámpá,	Nhá,	Lorú,	
Grass-hopper, <i>n.</i>	Phoring,	Gúung,	Phélong,	Khá,	Tékú,	Sékhú,	
Grave, <i>n.</i>	Moidám,	Phébtthani,	Arléng-Kipi- adung,	Mikivúiná,	Mokhrú,	Témé keshóng,	
Great, <i>a.</i>	Bor, Dángor,	Debi,	Kéthé,	Alin,	Kédi, Kézá,	Kégang,	
Great-toe, <i>n.</i>	Burá angúli,	Gáshima,	Kemúpi,	.....	.....	Ajong pú,	
Green, <i>a.</i>	Hiam boron,	Kékháng,	Káchinjok,	.....	Pezie or Ké- pézié,	Akeshin,	
(colour), <i>a.</i>					Kérhé,	Akénjhu,	
Green (raw) <i>a.</i>	Kénsá,	Kétháng,	Akévé,	Ahing,	Kézi,	Kázi,	
Ground, <i>n.</i>	Máti,	Há,	Longlé,	Léshit,	Mácháro,	.....	
Gullet, <i>n.</i>	Nelú,	Dilam, or Ká- rángthoroh,	.....	.....			





English.	Assamese.	Kachári.	Mikir.	Kúki.	Angámi Nága.	Réngmá Nága.	Kutchá Nága.
Gun,	<i>n.</i> Hiloi,	Hiloi,	Hilé,	Mépúm,	Missi,	Másápung,	
Gun-powder,	<i>n.</i> Khár, [ro,	Pákhár,	Phélo,	Mélú,	Bákhár,	Khorri,	
Gúts,	<i>n.</i> Nari, or Bhun-	Púbú,	.....	.....	Riéh,	.....	
Hail,	<i>n.</i> Hil.	Kédithai,	Hérré,	Gil,	Prr,	Tégwangácha,	
Hair (of	<i>n.</i> Súli,	Khnai,	Ichú,	Shám,	Tsú-thá, Thá,	.....	
man),							
Hair (of	<i>n.</i> Nom,	Pékhmi,	Angmi,	Ámúl,	Má,	.....	
mals),	<i>n.</i>				Téchá,	.....	
Half,	<i>a.</i> Adhá, E'do-	Kejar,	Abéng,	Akéhat,			
	khór,						
Half way,	<i>a.</i> Adhá bát,	Lámá kéjar,	Ajítim,	Akimjáncá,	Chákhwipo,	.....	
Hammer,	<i>n.</i> Hántúri,	Dáukabú,	Kibú,	.....	Rékri,	Kéchasén,	
Hand,	<i>n.</i> Hát, [dor,	Yáofá,	Néri, [ong,	Kékhút,	Bi, or Bhi,	Bén,	
Handsome,	<i>n.</i> Húwoni, Sun-	Mechangbi,	Méssén or Mé-	.....	Ngú-vi,	Kágwá,	
Hawk,	<i>n.</i> Hén,	Dáolinghá-	Vomú,	.....	Múvino,	.....	
		khri,					
He,	<i>pro.</i> Hi,	Bo or Po,	Báng,	Hipá,	Po,	Higá,	
Head,	<i>n.</i> Múr,	Khro,	Niphú,	Kálúcháng,	Tsú,	Api,	
Headache,	<i>n.</i> Múror bíkh,	Khró sháda,	Niphúsodé,	.....	.....	.....	
Hear,	<i>v.</i> Hún,	Khána,	Arjúnón,	Ngaitan,	Réniélé,	.....	
Heart,	<i>n.</i> Koládil,	Laikhúnthai,	Avibong,	Kalúngchang,	Mélú,	Akísá,	
		or Khemsoh,					
Heavy,	<i>a.</i> Godhúr, Bhári,	Rishibi,	Ardigúng,	Agitá-áhi,	Meswi,	Nsúri,	
Heel,	<i>n.</i> Géroá,	Yáshintho,	Kéngti,	Kakhú-tárjum	Phitso,	Phájha,	
Heir,	<i>n.</i> Waris, Poríál,	Hajirjáthá,	Paténg,	.....	.....	.....	
Help,	<i>v.</i> Upokár kor,	Khanariha,	Hangdamún,	.....	.....	.....	
Hen,	<i>n.</i> Máiki kúkúra,	Dáomá,	Voápi,	A-ánúng,	Vokrr,	.....	



	<i>ad.</i> Iyát,	E'ráhá, Thém, Hája, Chéngkhóng, Khúdi, Khojala, Rém, Péredí, Yáohgúr, Pókróng, Korai, Dóngbi, Noh, Pédilai, Bichlai, Mábishi, Rájashi, Hokhribi, Ang, Kébir, Shlébi, Shér, Méiung-ha- thai, Méshrong,	Ládák, Tonnún, Inglong, Vám, Kú, Phakálo, Népnún, Aláng, Akéngchémi, Anú, Lúsái, Károm, Hém, Kolopúson, Kolóan, Koán, Phérro, Kángchir, Né, Inchán, Kásélet, Unchin, Ingárnásó, Hijai or Jot- sat,	Hékúm, Shéltan, Múlshang, Kákherbú, Tútchá, Vochá, Mántan, Hojjú, Atin, Aki, Sakor, Asá, In, Itiám, Ijátham, Ijátúnam, Já, Kagilakilé, Kéi, Mingol, Mitháiong, Thi, Sáupihá,	Háki, Kéválé, Kizikhrú, Ligé, Kéjá, Vokrr, Téléché, Mekhwitza, Mú, Ká, Kwitt, Lé, Ki, Kidi, Kéziki, Kichúró, Krá, Mérr, A, Kéleho, Mechi, Thégé, Chúhú,	Héka, ..... Ringcho, ..... Khódróng, t'ébopécha, Ténglogotta, Khadi, ..... ..... Kérrú, ..... Ká,	Alká
Here,	<i>v.</i> Lúkuá,						
Hide,	<i>n.</i> Dhápoliká,						
Hill,	<i>n.</i> Topilá,						
Hip,	<i>n.</i> Kur, Kodál,						
Hoe,	<i>n.</i> Gáhorí,						
Hog,	<i>v.</i> Dhor,						
Hold,	<i>n.</i> Mójúl,						
Honey,	<i>n.</i> Khúnrá,						
Hoof,	<i>n.</i> Hing,						
Horn,	<i>n.</i> Ghonrá,						
Horse,	<i>a.</i> Topot, Gorom,						
Hot,	<i>n.</i> Ghor,						
House,	<i>ad.</i> Kénékoi,						
How?	<i>ad.</i> Kémán,						
How much?	<i>ad.</i> Káita,						
How many?	<i>a.</i> Háu,						
Hundred,	<i>n.</i> Bhúk,						
Hunger,	<i>pro.</i> Moi,						
I,	<i>n.</i> Págol,						
Idiot,	<i>a.</i> Eléhuá,						
Idle,	<i>n.</i> Ló,						
Iron,	<i>n.</i> Hánti dánt,						
Ivory,	<i>n.</i> Hiyál,						
Jackal,	<i>n.</i> Thotorá,						
Jaw,	<i>v.</i> Joróá,						
Join,	<i>v.</i> Jánpmár,						
Jump,	<i>n.</i> Bon-kúkúra,						
Jungle-fowl							







English.	Assamese.	Kacháři.	Mikir.	Kúki.	Angámi Nágá.	Réngmá Nágá.	Kutchá Nágá.
Jungle,	n. Jongol, Hábi,	Hágrá,	Inguám,	Gamlá,	Nhá,	.....	
Keep,	v. Rakh,	Mtháo,	Pédonang,	Néngatan,	Pévékéché,	Khénottá,	
Kick,	v. Lathimár,	Jiúphá,	Túrphit,	Chúntan,	Phitchá-pot- ché,	Nshishitá,	
Kid,	n. Sagolir Poáli,	Brinsha, [thái,	Béaso,	Kélnou,	.....	.....	
Kidney,	n. Ghilá,	Thárap, Mi-	Hámbi,	.....	Mécha,	.....	
Kill,	v. Mar, Bodhkor,	Shúthai,	Pithinún,	That-tan,	Dúkhrléché,	.....	
Kilt,	n. Mékhilá,	Rigú,	Pini,	Ni,	Ni,	.....	
Kind,	n. Morom,	Kasháo,	Kághou,	Alúnáshi,	Mezié,	.....	
King,	n. Rójá,	Rája,	Récho,	Háoshá,	Kédimá,	.....	
Knee,	n. Anthú,	Yáshgú,	Kéngphú,	Kakhúbú,	Khútzá,	.....	
Knot,	n. Gánthi,	Khát-ho,	Kéthit, [ká,	Akikhitboh,	Pélé,	Kho, Abél,	
Knuckle,	n. Angulirgánthi,	Yáoyén,	Rechimúnási-	Kakhútchéng,	Bikhr,	Jonghú,	
Ladder,	n. Jokhlá,	Yaokhléng, or Yathomai,	Don-don,	Léi,	Khéa,	Shongphá,	
Lane,	n. Khorá,	Khorrá,	Kátékok,	Kéngbai,	Rélié,	Nphágwágé- mu,	
Language,	n. Mát, Bhákhá or Dúan,	Kérokhábá,	Lámkáchésák,	Kapáo,	Khwé,	.....	
Leaf,	n. Pat,	Plái,	Arvo,	Ná,	Nié,	Jongni,	
Leather,	n. Sál, Samorá,	Bokúr,	Arreng,	Sáwún,	Chiza,	Agi,	
Leg,	n. T-héng,	Yágá,	Kéng,	Kékéng,	Phi,	Phá,	
Lemon,	n. Némú-téngá,	Thaisháyán- shúgar,	Thésó	.....	.....	Tháshúshá,	
Length,	n. Dighol,	Káláo,	Ajon,	Adúng,	Kéchá,	Atháng,	
Leopard,	n. Náhor-phúté- ká Bagh,	Mishathre,	Kéthoi,	Ajé,	Tékhú-khútti,	Mamo,	Kaoti



Lick,	v. Séléká,	Spláo,	Kangléknún,	Aléetan,	Méieché,	Juta,	
Lightning,	n. Bijúli,	Shráp,	Chétúrkéang,	Ké,	Ngúkhwe,	... ..	
Lip,	n. Onth,	Khújar,	Túr,	Kánél,	Sho,	Méngsi,	
Listen,	v. Hún,	Khánaólá,	Arjunon,	Ngáitan,	Zú,	.....	Choi
Little,	a. Horú, Olop,	Khásebi,	Kébi,	Anéo,	Kechi, Chi,	Keshén,	
Little-finger,	n. Kényá angúli, Yaoshisha,	Yaoshisha,	Múnso,	.....	Blebono-ré	Jongúantén-	
					khrocho,	ga,	
Liver,	n. Agmongoh,	Páká,	.....	.....	Seh,	... [nin,	
Long,	a. Dighol,	Khaláo,	Keding,	Asháo,	.....	Kotojoninahé-	
Lungs,	n. Haon-phaoon or Ukhá-ghor,	Poshroh,	.....	.....	Phiéh,	.....	
Man,	n. Mánúh, Pú-Shibúng,	Shibúng,	Arléng,	Mihim,	Thépvomá, or	Tané or Pe-	Umpémi
					Themná,	choniú,	
Mangoe	Ám,	Thajjú,	Thárve-athé,	Haithé,	Merrosi,	.....	
(fruit),	n.						
Meat,	n. Mongoh,	Mokong,	Ok,	Sá,	Themnio,	Tha,	
Medicine,	n. Dorob, Darú,	Múli,	Bábámúng,	Lou,	.....	Méi,	
Mend,	v. Botá,	Shúkbá,	Kanghon,	.....	Phréléché,	Raté,	
Middle,	n. Maj,	Kéjar,	Angbong,	Akinjang,	Métso,	Alénin,	
Midnight,	n. Honmájb,	Hokéjar,	Yérlo,	Jánkháng,	Tilloki,	Hopénso,	
Milk,	n. Gákhir,	Abúdi,	Amokláng,	Silatnoitú,	Núdzú,	Niéde,	
Monkey,	n. Bandor,	Mákhúsa,	Thévo,	Jong,	Tékwi,	Thékú, Tégú,	Jémbé
Month,	n. Máh,	Tain,	Chiklo,	Lhá,	Khr,	Sharmé,	
Moon,	n. Jún,	Táin,	Chiklo,	Lhá,	Krr or Khr,	Chákágong,	Héké
			Chiklolongpi,				
Mosquitoes,	n. Moh,	Thámphi,	Chitún,	.....	Virú,	Tékhú,	
Mother,	n. Ai, Mátri,	Mámá,	Pé,	Anú, Hénú,	Azo,	Azo,	Apú
Mountain,	n. Porbot,	Hajiu,	Inglong,	Molshang,	Kíji-Khrú or	Réncho,	
					Sájé-Khrú,		
Mound,	n. Háphlú,	Háphlo,	Téplong,	Lhimlúng,	Répu,	Umpiong,	
Mouse,	n. Nigoni,	Mécho,	Gokingsho,	Júchá,	Zuché,	Tépu,	
Mouth,	n. Múkh,	Kho,	Ho,	Kámú,	Tá,	Mangkhong,	



English.	Assamese.	Kachári.	Mikir.	Kúki.	Angámi Nágá.	Réngmá Nágá.	Kutchá Nágá.
Mud,	<i>n.</i> Boká,	Hádebu,	Inghán,	Abang,	Kia,	.....	Ké
Musket,	<i>n.</i> Hiloi,	Hiloi,	Hilé,	Mépúm,	Missi,	Másápúng,	
Moustaches,	<i>n.</i> Gonph,	Khámphor,	Ingnum,	Khámúl,	Támá,	Ménghá,	
Nail (finger),	<i>n.</i> Nokh,	Shérsbú,	Asésélét,	Tin,	Bitsé,	Dáchén,	
Naked,	<i>a.</i> Nángtá,	Lángthá,	Aréngángsi,	Akongmái,	Métho,	Niákémo,	
Navel,	<i>n.</i> Nai,	Hotmai,	.....	[kom,	Loh,	.....	
Near,	<i>prep.</i> Osorot,	Sámphábi,	Tébokhét,	Náichá,	Képénoki,	Núnan,	
Neck,	<i>n.</i> Dingí,	Koto,	Chithok,	Kangong- chang,	Vo or Voo,	Ghúndá,	
Needle,	<i>n.</i> Béji,	Shimi,	Ingprim,	Héú,	Thépré,	Pén,	
Nephew,	<i>n.</i> Bhatijá,	Lúra,	Nékoraso,	.....	No or Sazeono,	Aséjanganu,	
Nest, (bird),	<i>n.</i> Báh,	Páthib,	Atár,	Abú,	Pérrá-kru,	Aché,	
Net,	<i>n.</i> Jál, Phánd,	Ché,	Lán,	Lén,	Zú,	Jhó,	
New,	<i>a.</i> Notún,	Katáin,	Kémi,	Athá,	Késsá,	Késhé,	
Niece,	<i>n.</i> Bháginí,	Bishá,	Koráso,	.....	Mé,	Asénganiu,	Tingmúi
Night,	<i>n.</i> Rati,	Hor,	Ajio,	Ján,	Tizi,	Chéngarzén,	Hékowi
Nine,	<i>a.</i> Náú,	Shiko,	Sirkép,	Kó,	Thékú,	Tákká,	
Nineteen,	<i>a.</i> Unois,	Majishigú,	Krésirkep,	Shom-lé-kó,	Mekúpomo- thékú,	Kemmélo- shiánki,	
Ninety,	<i>a.</i> Nowoi, Noboi,	Bishá brithogi,	Throk sirkép,	Shom-kó,	Lhi-thekú,	Hain-takká,	Rhé-hékowi
No,	<i>ad.</i> Nái, Nohoi,	Niá,	Káli,	Aompoi,	Mo,	Múlé,	La
Nose,	<i>n.</i> Nák,	Pokúng,	Nokán,	Nákui,	Nhitchá,	Hikong,	Chú
Now,	<i>ad.</i> Etiya,	Dúha,	Non,	Tún,	Ché-Tsé,	Ncho,	
Oil,	<i>n.</i> Tél,	Tháo,	Yángthú,	Shatháo,	Gakridzú,	I'échéudi,	
Old,	<i>a.</i> Búrá, Púroni,	Karáshá,	Késsor,	Téshé, Alú,	Kétsá,	Kéthén,	
Once,	<i>ad.</i> Ebeli, Ebar,	Alángshi,	Ipúr,	Khátvé,	.....	Gwéngwo,	
One,	<i>a.</i> Ek, Etá,	Mási,	Isi,	Khat,	Po,	Kammé,	



Onion,	<i>n.</i> Piáz, [téugá, Shámphráng,	Arsún,	Lothútil,	Khová,	Shongin,
Orange,	<i>n.</i> Húnthirá-	Hónthirá,	Shamátalái,	Chiffo,	Hónthirá,
Orphan,	<i>n.</i> Máúrá,	Pomagéthé,	..... [lip,	Méronomá,	Teghoniú,
Owl,	<i>n.</i> Phénsá,	Dáokhú,	Chimbúcháng-	Rékhro,	Khénsén,
Pain,	<i>n.</i> Bikh,	Shábá,	Anái,	Chi,	Rivénion,
Peacock,	<i>n.</i> Moirá,	Dáutái,	To-oiai,	Rádi,	Géldá,
Pig,	<i>n.</i> Gahúri,	Hono,	Vo-áchá,	Thévo-(Wild-pig, Méngi),	Tébo-(Wild-pig, Ni.)
Pigeon,	<i>n.</i> Páro,	Dáophri,	Vapár,	Topér,	Topri,
Plantain	<i>n.</i> Kol-gos,	Tháilúpháng,	Náchang,	Tekwé-Si,	Tháiabén,
(Tree),	<i>n.</i>				
Poison,	<i>n.</i> Bih,	Rú,	Thalgú,	Théri,	Méi,
Poor,	<i>n.</i> Dúkiyá,	Dúkhía,	Vaichá,	Mhéji,	Tégheinin,
Porcupine,	<i>n.</i> Kotla-pohú,	Médei,	Sákú,	Sékrú,	Unchong.
Potato,	<i>n.</i> Alú,	Thátái,	Há,	Réphé,	Kénrháshá,
Pull,	<i>v.</i> Tán,	Sháin,	Loitan,	Téshile,	Shilogottá,
Push,	<i>v.</i> Thélidé,	Né,	Shontau,	Néshi,	Jhenta,
Raft,	<i>n.</i> Mar,	Rúngmár,	Púm,	.....	Pien,
Rafter,	<i>n.</i> Rúá,	Phérai,	Vákhái,	Kárhong,	Chinaurba,
Rain,	<i>n.</i> Borokhún,	Hádi,	Go,	Tir,	.....
Rat,	<i>n.</i> Endúr,	Moshi,	Júni,	Thézú,	Tepú,
Raw,	<i>a.</i> Kénsá,	Kétháng,	Ahing,	Kérhi,	Tégi,
Red,	<i>a.</i> Rongá, Lál,	Kajáo,	Asan,	Keméri,	Kéhang,
Rest,	<i>v.</i> Jirá,	Léngboba,	Kingátan,	Rélité,	Chongtá,
Return,	<i>v.</i> Ubhoti áh,	Phomiphái,	Honkitan,	Lákérlé,	Vochiniurottá,
Rhinoceros,	<i>n.</i> Gonr,	Koná,	Gondá,	Kwédá,	Kwendá
Rib,	<i>n.</i> Kámi-har,	Sangkhréng,	.....	Tié,	.....
Rice	<i>n.</i> Bhát,	Makhám,	Bú,	Té,	Tún,
(cooked),	<i>n.</i>				
Rice (un-cooked),	<i>n.</i> Sául,	Máirong,	Chángchang,	Chiko,	Cheko,
cooked),	<i>n.</i>				





English.	Assamese.	Kachári.	Mikir.	Kúki.	Angámi Nágá.	Réngmá Nágá.	Kutchá Nágá.
Rich,	a. Sohoki, Dhoni,	Kanáng,	Kiri, Keplang,	Aháwá,	Méni,	Kegwanu,	
Ring,	a. Angothi,	Yáosdám,	Arnán,	Khotjém,	Kékíá,	Bénkhi,	
Ripe,	a. Poká,	Kémén,	Kémén,	Amintai,	Mé	Kémén,	
River,	a. Núi, Nodi,	Dikbong,	Langroipi,	Vádúng,	Kér,	Dikégong,	
Road,	a. Bát, Ali,	Láma,	Tovar,	Lampi,	Chá or Shá,	Cháng,	
Root,	a. Hipá, Gúri,	Popháng,	Aukúr,	Thingbal,	Mi,	Rongmá,	
Rope,	a. Jori,	Dúshá,	Ari,	Khao,	Kerré,	Rong,	
Rotten,	a. Posá, Gélá,	Sháokhá,	Thúok,	Amon,	Titta,	Réngosho,	
Rupee,	a. Toká, Rúp,	Ráng,	Rúp,	Shúmhéng,	Ráká,	Tébipong,	
Salt,	a. Lón,	Shém,	Intá,	Chi,	Métsá,	Ché,	
Same,	a. Eké,	Ebúno,	Chingbarehit,	Gotkhat,	Kémhá,	Kégwento,	
Sand,	a. Bálí,	Háchén,	Sangti,	Pilnél,	Hochá,	Hácháng,	
Sap,	a. Roh,	Didongwá,	Théngpéan	Anai,	Sidzú,	Shinkong-	
Save,	v. Údhákor,	Máthángbá,	kokarláng,	.....	Pévélé,	niudi,	
Say,	v. Koh, Bol,	Thi,	Jokflotlonone-			Théwékhí-	
Scratch,	v. Ansorá	Púrúpá,	phong,			losbo,	
See,	v. Sá, Dékh,	Nai,	Púnón,	Séitan,	Pulé,	Chogotta,	
Seize,	v. Dhor,	Rém,	Káchéphú,	Khot-tan,	Pekhwásiché,	Nkhmé,	
Seven,	a. Hát,	Máshni,	Lángnún,	Vétan,	Pisiché,	Phita,	
Seventy,	a. Hotor,	Pishákéthám-	Népnún,	Mámin,	Téléché,	Ténotá,	
		thúji,	Throkxi,	Sági,	Théná,	Séni,	Héná
		Thojishni,	Throkxi-kép,	Shom-sági,	Lhi théná,	Hain-sini,	Rhé-hená
Seventeen,	a. Hotéro,		Kréthrokxi,	Shom-lé sági,	Mekú-pomo-	Unkipému-	
					théna,	seni,	
Shade,	a. Sánia, Sán,	Shainkhlim,	Abin,	Alim,	Tisú,	Asa,	
Shallow,	a. Torang,	Pábi,	Lángákángde,	.....	.....	Dikshem,	





Shame, Share,	<i>n.</i> Láj, <i>v.</i> Bontá, Bhág- kor,	Lágikhá, Bánthá-khlai,	Thrágdúk, Thágnún,	Ajá, áchai, Homin,	Méngá, Kézáléché,	Kéjómáré, Kéngéno- gotta, Sérralogotta,	
Sharpen,	<i>v.</i> Dhoróá, Soká- kor,	Pobi,	Arsúnon,	Nolhimin,	Kérsiché,		
Shave, Shield,	<i>v.</i> Khúruá, <i>n.</i> Phor, Dhál,	Shin, Phi,	Soinún, Chong,	Votan, Lúmbong,	Thésiché, Pézhi,	Thégottá, Ki,	
Short,	<i>a.</i> Sunti, Khatá,	Heibi,	Ajiongathi,	A'chom,	Kézza,	Kéddi,	
Shoulder,	<i>n.</i> Kán, Kándh,	Pháophrong,	Pháng,	Kalinkó,	Búkhe,	Ábé,	
Shút,	<i>v.</i> Bondh kor, -	Phúnghá,	Kángáp,	Nágátongin,	Kévásiché,	Dwánogotta,	
Sick,	<i>a.</i> Moriá,	Lémdhé,	Késo,	Áná,	Mháchi,	Rú-gwámó,	
Silver,	<i>n.</i> Rúp,	Sháthi,	Rúp,	Shúmchéng,	Rákajé,	.....	
Sing,	<i>v.</i> Gánkor,	Réjap,	Lúngilún,	Lásan,	Chellisiché,	Léthéta,	
Sister,	<i>n.</i> Bhoni, [káli,	Bhandaó,	Ningjirpi,	Kánaomi,	Alápvo,	Aléki,	
Sister-in-law,	<i>n.</i> Jéháhú Khúl- Púai	Púai	Korpi,	.....	.....	Amó,	Ali-púi
Sit,	<i>v.</i> Boh,	Khám,	Ninon,	Tovin,	Balé,	Bhéintá,	
Six,	<i>a.</i> Soi,	Máto,	Thrók,	Gúp,	Súru,	Sérro,	Hérro
Sixteen,	<i>a.</i> Holo,	Majito,	Kréthrok,	Shom-lé-gúp,	Kerr-o-Súru,	Unkipemo- Sérro,	
Sixty,	<i>a.</i> Háthi,	Bishágothám,	Throk-ké,	Shongúp,	Lhi-Súru,	Hain-Sérro,	Rhé-herró
Skin,	<i>n.</i> Sal,	Púgur,	.....	.....	Jih,	.....	
Sky,	<i>n.</i> Akáh,	Nákasháo,	Sinéng,	Vánchúng,	Ti,	Chém,	
Sleep,	<i>v.</i> Hó, Toponijá,	Thúda dong,	Inot,	Lúmtan,	Jiléché,	Jibénkhé,	
Slowly,	<i>ad.</i> Dhiré-dhiré,	Khéré-khé,	Péiu-péiu,	Olcháchan,	Rékribe-rek- rihé,	Gwén-gwén,	
Sly,	<i>a.</i> Téngor,	Láthúa,	Kérré,	Achingthé,	.....	Kessérú,	
Small,	<i>a.</i> Horú,	Khashibi,	Bibék,	Anéo,	Chi, Kéchi,	Keshén,	
Smell,	<i>v.</i> Húngá,	Márrámbeí,	Angnimdo,	Nátan,	Théngúsiché,	Arrénie,	
Snake,	<i>n.</i> Háp,	Jibú,	Phirúi,	Gúl,	Tinhi,	Pérré,	
So,	<i>ad.</i> Ené, Téné,	E'dinú,	Lápú,	Hiti,	Hidi,	Hichá,	Hanéi
Son,	<i>n.</i> Putro, Puték,	Anshá,	So,	Kachápá,	No,	Nio,	Achú



English.	Assamese.	Kachári.	Mikir.	Kúki.	Angami Nágá.	RéngmáNágá.	Kutchá Nágá.
Sour,	a. Téngá,	Mékhrí,	Hánthor,	Théthú,	Khié,	Késsáng,	
Sow,	a. Maiki gáhorí,	Homá,	Phákápi,	Vo-ánú,	Vokrr,	Tébohpú,	
Span,	a. Bégot,	Khújlá,	Ichák,	Kháp,	.....	Nka,	
Spear,	a. Jathi,	Chong,	Chir,	Téngchá,	Réngú,	Méi,	
Spider,	a. Mokorá,	Pémá, [laibá,	Sangman,	Máimom,	Siré,	Káutéroh,	
Spit,	v. Thúi-péloá,	Khúdi-thúk-	Kángthoknún,	Nechilpaitan,	Métsáchiché,	.....	
Spleen,	a. Jorkhapori,	Pem, or Bothla,	.....	.....	Nútú,	.....	
Square,	a. Sári súkiyá,	Korombri,	Konáphili,	Ningli,	Pokadá,	Péi-je,	
Stab,	v. Khóns,	Yébá,	Kétok,	Súntan,	Pézachi,	Ghémá,	
Star,	a. Torá,	Hathrái,	Chiklo-longso,	A-ási,	Thémú,	Chama,	
Steal,	v. Súr kor,	Kháúbá,	Kéchonghú,	Gútan,	Réguléché,	Kérrahé,	
Steam,	a. Bháp,	Kohúdi,	Angúi,	Tikhú,	Dzú melloh,	Akénú,	
Stick,	a. Bári, Láthi,	Yájémú,	Chin,	Tingol,	Kéthé,	Than,	
Stone,	a. Hil,	Longthai,	Arlong,	Shong,	Kéché,	Cho,	
Stomach,	a. Pét,	Hob, or Búbúi- ong,	Pok,	Kaol,	Vádi, Váká,	King,	
Straight,	a. Pón,	Péléngbi,	Kékéng,	Ajángké,	Mézi,	Jiji,	
Stream,	a. Ján, Júri,	Dishá,	Kengsih, Lángso,	Tidung, dung,	Kér,	Dirikéssé,	
Strength,	a. Bol, Hokti,	Bol,	Yákong,	Ahat,	Káméti,	Areniá,	
Strike,	v. Már,	Súhá,	Chongnún,	Votán,	Vosiché,	Bvúta,	
Suck,	v. Sobá, Hohá,	Sopá,	Kángsip,	Chéptan,	Kélháléché,	Chéntá,	
Sun,	a. Béli,	Sain,	Arni,	Nisa,	Náki,	Héka,	
Swear,	v. Hopotkhá, f. dé,	Sémáidáonbá,	Sémétángnún,	Kebáchélin,	Réswéléché,	Chwéngottá,	
Sweep,	v. Honrá, Jharú-	Hasipkhái,	Karkok,	Théin,	Khowáleché,	Khogottá,	
Sweet,	a. Hoád, Mithá,	Kéddi, Dibi,	Kédok,	Alhum,	Kémú,	Néni,	



Tail,	n. Négúr, or Nez,	Pernái, or Khermai,	Améi,	Mi,	Amá,	Kérré
Take,	v. Loh,	Lang,	Lán, Látan,	Léléché,	Khilogottá,	
Tall,	a. Ukho,	Chobá,	Ásángpi,	Rékré,	Táchosáng,	
Tear,	v. Pholá,	Chikháo,	Loiétan,	Kihásiché,	Shirhéng-hot-tá,	
Ten,	a. Doh,	Tháúji,	Shom,	Kerr,	Sérráh,	
Testicle,	n. Phol-guti, [lak,	Lidaodi,	Hitého,	Dza,	.....	
They,	pro. Hibont, Hibi-	Poshi,	Hiacho,	Liko,	Hidén,	
That,	a. Ho, Hoto,	Obo,	Hiténg,	Lú,	Lí,	
Then,	ad. Tétiyá,	Dánanghá,	Héachún,	Tsé,	Nchángki,	
There,	a. Dáté,	Horáhá,	Asábébú,	Chinú Lúki,	Lúki,	
Thick,	a. Dáth,	Réjábí,	Gúchá,	Mélob,	Sémépan,	
Thief,	n. Sór,	Mhkáo,	Apádidé,	Kérégúma,	Kéréhénú,	
Thin,	a. Pátol,	Pábi,	Héché,	Repvo,	Répúbén,	
This,	pro. Eí Eíto,	Ebo,	Shon-thúm,	Hao, Chú,	Hi,	
Thirty,	a. Tris,	Bishasi-máji,	Kádangácháé,	Sérr,	Shánrá,	
Thirst,	a. Piyáh,	Shámfráng,	Ling,	Térth,	Songni,	
Thorn,	n. Kaint,	Shú,	Náng,	Chohú,	Sáha,	
Thou,	pro. Toi,	Núng,	Náng,	No,	Né,	Náng
Thousand,	a. Héjár,	Rijínchi,	Já-shom,	Nié,	Shám,	Né
Three,	a. Tiní,	Kéthám,	Thúm,	Sé,	Késhán,	Késhúm
Throw,	v. Pélóá,	Khébibá,	Pátan,	Péiesiché,	Phéngottá,	
Thunder,	n. Gorjon,	Nokhásoágá-rémá,	Vánágúngé,	Prthé,	Chingashén,	
Thus,	ad. Ténékoi,	Eí E'dlái,	Hithúchú,	Hidi,	Jong,	Achú
Tie,	v. Bondhá,	Khá,	Kántan,	Pháléché,	Phén,	Herrakedi
Tiger,	n. Béntásorabág,	Raikhon,	Ajé,	Tékhú,	Témá,	Nái
To-day,	ad. Aji,	Tinni,	Túnin,	Thá,	Nthé,	
Toe,	n. Bhorir angúli,	Yáshishá,	Kákéng jún,	Phichino,	Ajongro,	





English.	Assamese.	Kacháři.	Mikir.	Kúki.	Angámi Nágá.	Réngmá Nágá.	Kutchá Nágá.
To-morrow, <i>ad.</i>	Káli,	Dákhná,	Pénnap,	Jinglé,	Sodú,	Séndú,	Chonai
Tongue, <i>n.</i>	Jibá,	Sálái,	Dé,	Káleri,	Mélla,	I,	
Tooth, <i>n.</i>	Dánt,	Háthái,	So,	Káhá,	Hú,	Háh,	
Torek,	Ariyá,	Wainchéng,	Théngthom,	Mésél,	Mítú,	Máná,	
Touch,	Sóá, Hát-dé,	Káding,	Otnún, [pi,	Thámtan,	Bésiché,	Hollottá,	
Tree,	Gos,	Wongphang,	Arong, Theng-	Shing,	Si,	Sén,	
Tribe,	Khél, jati,	Shéngfong,	Akur,	Kahi,	Thino,	.....	
Truth,	Honsá,	Kébéi,	Yásamét,	Tá-ábe,	Kétho,	Késan, [sha,	
Twelve,	Báro,	Máji-jini,	Kré-hini,	Shom-lé-ni,	Kérr-o-kéná,	Serrah-kéhiun-	Kérré-kéná
Twenty,	E'kkúri, Bis,	Bishási,	Nkoi,	Shom-ni,	Mékú,	Nki,	Nkai
Two,	Dúi,	Gini,	Hini,	Ni,	Kénna,	Kénhiun,	Kénna
Unbind,	Mél, Khól,	Khrú,	Pioknún,	Lhámtan,	Phishiché,	Tingottá,	
Uncle (Fa-ther's side) <i>n.</i>	Dodái,	Adi,	Ponú,	Hépangá,	Né,	Anio,	
Uncle (Mother's side) <i>n.</i>	Momái,	Maoshi,	Pinú,	Hénungá,	Amúi,	Ajhú,	
Unite,	Mil-kor, [sá,	Jorájú,	Kangthún,	Kihotavin,	Kéméthusi- ché,	.....	
Unripe,	Nopoká, Kén-	Kéthang,	Akévé,	Aminto,	Mémo,	Miémo,	
Vegetable,	Hák,	Shámlái,	Hán,	Mé,	Ghá,	Hén,	
Village,	Gaon,	Nolai,	Rongso,	Kho,	Rénna,	Phén,	
Warm,	Kúbúmiyá,	Túngbé,	Párom,	Ásá,	Lé,	Kéiyéng,	
Warm,	Goromkor,	Túngbékh- láiha,	Páromn ún,	Olúmtan,	Péleleché,	Thikéiyéng,	
Wash,	Dhoá,	Shú,	Késhoknún,	Shoptan,	Késchúché,	Kathú,	
Water,	Jol, Pani,	Di,	Láng,	Túi,	Dzú,	Di,	
Wax,	Mom, mo-hitá,	Péreshlái,	Júir,	Khoilú,	Mékhwi,	Khúchién,	







*Vocabulary of the Banpará Nágás.—By S. E. PEAL, Esq., Sibságar, Asám.*

(Continued from Journal, A. S. Bengal, Part I, for 1872, p. 29.)

In the following vocabulary á represents the *a* in *bar*; â stands for *au* as in *naught*; ai, as in *aisle*; au, as in *loud*; e, as *ei* in *eight*; é, as in *hen*; i, as in *hill*; í, as *ee* in *heel*; ó, as the *o* in *not*; o, as in *note*; u, as in *full*, and ú as *oo* in *fool*.

Abdomen,	vók.	Bait,	púsên.
Able,	túák.	Bamboo,	nyad.
Above,	dinko.	Bank,	shwak túm.
Ache,	kak (kuk).	Banyan-tree,	ngau, mú.
Acid,	mák.	Barn,	púng.
Across,	árêm.	Bark,	pan kan.
Acute,	jún.	Base,	hâtâng.
Adder,	pú.	Basket,	shók shâ.
Adze,	vá.	Bat,	âpák.
Afraid,	râ.	"	pâk pí.
After,	pai tú.	Battle,	ran, rón.
Aged,	arúpá.	Bead,	lík.
Air,	vin.	Beam,	páng láng.
Alive,	áráng.	Bean,	piá sá.
Alike,	tâve.	Bear,	tchap, chup.
All,	pang ve.	Beard,	mun pú.
Amber,	násá.	Beat,	pít.
Among,	hótán.	Bee,	nánái.
Ancestor,	ápú.	Beetle,	tchóng.
Angel,	háráng.	Before,	tât le.
Animal,	maií, <i>lit.</i> flesh.	Bell,	linglo.
Ankle,	tchi ding.	Bellows,	zêtpú.
Ant,	tzik tzá.	Belly,	vâk.
Antelope,	mai kí.	Below,	hâpâng.
Ape,	saákáng.	Belt,	rú pák.
Arm,	tzak or chuk.	Bench,	líá.
Armadillo,	ha bí.	Bent,	kúm.
Arrow,	sán.	Best,	hánkú.
Ashes,	lábú.	Betel-nut,	kovai.
Astray,	sam.	Between,	hâtâng.
Atmosphere,	rang.	Big,	chóng.
Awl,	jan mat.	Bird,	â.
Away,	pau tú, pau ha.	Bird-cage,	shókshâ.
Axe,	vá.	Bitter,	ká.
" (dao),	chang, tchang.	Black,	nu nak.
Babe,	nâsim.	Blacksmith,	cháng lík.
Back,	tâki.	Blanket,	ní.
Bad,	man me.	To bleed,	adzí le,
Badger,	ran vak.	Blind,	dók.
Bag,	nítzúng.	Blindness,	mík dók le.



Blood,	adzí.	Cave,	ha kon.
Blossom,	púa.	Centipede,	pú soí.
Blue,	nak che.	Charcoal,	mák.
Boar,	vák la, mai la.	Cheap,	ná.
Boil,	tâ.	Cheek, <i>n.</i>	navêm, bomzróng.
Bone,	rzân, orzân.	Chest,	khá tók. [bird]
Bone,	hórâ, rá.	Chicken,	â sa ( <i>lit.</i> young)
Bough,	panchak.	Chief,	vang hum, vang sâ.
Bow,	yántú.	Chillie, <i>n.</i>	hing bú.
Box,	shwák.	Chin,	ká rá.
Boy,	nausâ, man sâ.	Chunga (Bamboo } tube,) }	tún.
Bracelet,	kapsan.	Chrysalis,	chóng púa.
Branch, (tree),	pan kang.	Claw,	chakin.
Brandy,	zú.	Clay,	há.
Bread,	án.	Cloth,	ní.
Breakfast,	kan sâ há.	Cloud,	rang shai.
Breeze,	vin.	Coal,	ha nak.
	{ rang vin le.	Cock,	â pâng.
	{ sky wind makes.	Cold,	dang.
Brick,	há ( <i>lit.</i> earth).	Come,	pau hi, pau he.
Bridge,	shai.	Cord,	rú.
Brimstone,	hing.	Corn,	tzá.
Bring,	pau he, pau hai.	Cost,	lâhí.
Broad,	kau.	Cotton,	pai.
Broken,	pak.	Cough,	âhai le.
Brook,	shwa sa.	Countenance,	tún.
Broom,	hâjá.	Cow,	mai hú.
Brother,	átai.	Crab,	shân.
Brow,	kong ra.	Crack,	hák (hak le).
Buffalo,	lúi.	Crag,	há hung.
„ wild,	lúi hing.	Creeper,	rú kâ.
Bug,	ve koi.	Cricketer,	do mo.
Bull,	mai hú, hapang.	Crocodile,	kún kí.
To Burn,	van súng le.	Crook,	kúm.
Burial,	rúk túá.	Crossbow,	háp.
Bush,	pau kâ.	Crow,	âkâ.
Butterfly,	pí twák.	Cucumber,	mai kú.
Cable,	rú.	Cushion,	káng tai.
Cake,	ân, án.	Cut, <i>v.</i>	hut ko, hat ko.
Calamus,	re.	Cymbal,	sí.
Calf,	mai hú sâ.	Dagger,	bít sa.
Camphor,	shâ.	Damp,	shún.
Cane,	re.	Dance,	ázai.
Cannon,	ján túá.	Dancing,	ázai le.
Canoe,	kwá sâ.	Dark,	núk, nak.
Cap,	kohom.	Darkness,	{ rang núk le. sky black makes.
Carcass,	zí le ( <i>lit.</i> dead is).	Dart,	qâ hí.
Cascade,	tí chóng le. (water great is).	Daughter,	â phe.
Cat,	míá.	Dawn,	shom shák.
Caterpillar,	chóng.		



Day,	túng tâ.	Escape,	pan le.
Dead,	zí, jí.	Evening,	hang shang.
Deaf,	na ba.	Ever,	pang vai.
Dearth,	no le.	Exact,	hút zing.
Death,	zi.	Expanse,	man kam.
Debt,	tá.	Extinguish,	a mut le.
Deep,	zú.	Eye,	mí.
Deer,	mai, <i>lit.</i> flesh.	Face,	tún.
Deity,	há rang.	Fall,	dat le.
Deluge,	ti chong le.	False,	man pai.
Demon,	lún pú.	Family,	horiêm.
"	harang mun me.	Famine,	nâ le.
Dense,	ping.	Fan,	rang zêp.
Depart,	pau há.	Far,	átai.
Descend,	jú dú.	Father,	ápá.
Dew,	rang phúm.	Feast,	mí tú le.
Diarrhœa,	mong chai le.	Feather,	â koi.
Die,	zi, zí le	Fence,	jávát.
Dig,	há tâ le.	Fern,	tak shoí.
Dike,	shwá tá há.	Fever,	kak.
Dinner,	po sá há.	Few,	hí.
Dish,	kap kú.	Fig,	púk ják.
Distant,	ántái le, atai le.	Fin,	nyêk kan.
Ditch,	shwa kún.	Finger,	chákí.
Don't,	támúk.	Finish,	múi.
Dog,	hí.	Fire,	van (vun).
Done,	múi (mui le).	Firewood,	há.
Door,	káhák.	Firmament,	rang.
Dore,	â shú.	Fish,	nyá.
Drake,	â pák pong.	Flannel,	ní.
Drink,	ling.	Flat,	tam kak.
Drown,	zí le.	Flea,	tseli.
Drum,	sám.	Flesh,	mai í.
Dry,	rán.	Flint,	van hong (fire stone).
Duck,	â pák nú.	Flood,	ti chong le.
Ear,	ná.	Flour,	án, á.
Early,	rang ai le.	Flower,	púa, mai pua.
Earth,	há.	Flute,	toá pít.
Earthen-ware,	páke.	Fly,	hât.
Earthquake,	shí le, mítí.	Foot,	chia.
Eat,	sa le.	Footstep,	chiá tíng mán.
Eclipse,	rang phú.	Forest,	pau.
Edge,	chungh na.	Foul,	â.
Eel,	nya { kan lú.	Frog,	lúk.
Egg,	á tí.	Fruit,	pan ják.
Elastic,	lâ le.	Fuel,	há.
Elbow,	chak lo.	Fur,	mún.
Elephant,	loák.	Gale,	rang tai.
Equal,	tam vai.	Gander,	â chong.
Erect,	á jóng.	Gate,	há hák.





Giant,	mí chón.	Javelin,	pá.
Girl,	shí kú.	Jaw,	ká.
Gnat,	mún kau.	Joint,	tsá vát.
Go,	pau lá, pau há.	Jump,	pat.
Goat,	roan.	Jungle,	paú.
God,	há ráng,	Kid,	roan sá.
Gold,	siên.	King,	vang ham.
Good,	mai mai le.	Kitten,	míá sá.
Goose,	â chón.	Knee,	chi kúí.
Grain,	tzá.	Knife,	bít sá.
Granary,	púng.	Knot,	lúng ká.
Grass,	hing.	Knuckle,	chakí.
Grasshopper,	do mo.	Ladder,	chí túng.
Great,	chón.	Lake,	núánú jí.
Grief,	on.	Lance,	chí áp aí le.
Gum,	tá.	Large,	chong, chong le.
Gun,	ján túá.	Lazy,	húrk.
Gunpowder,	kat.	Lead,	jántáng.
Hail,	jún.	Leaf,	pan chak, <i>lit.</i> tree-hand.
Han,	ká, ko.		
Half,	hat (hut le).	Leech,	vát.
Hand,	chak, chák.	Leg,	chíá.
Handle,	chang ko.	Leopard,	tzánák, chánák.
Hard,	tiák.	Lift,	pai pau le.
Hatchet,	cháng.	Lightning,	rang dung le.
Head,	khúng.	Lizard,	hât, hâát, pelo ?
Heavy,	lí le.	Locust,	kak.
Heel,	chídún.	Long,	lá le.
Hen,	â nú.	Loose,	nai lí.
High,	tang lí.	Lost,	má lí.
Hill,	hápá.	Loud,	ní á lúng.
Hinder,	pai kí.	Low,	hâtang.
Hip,	ke rong.	Mad,	bo le.
Hoe,	hâ.	Man,	mí.
Hog,	vák lá.	Many,	tai hú le.
Honey,	ná tí (bee-water).	Mat,	dam.
Hornbill,	ârzá.	Meat,	maií.
Hornet,	lím.	Medicine,	hing.
Horse,	mán.	Middle,	hótán.
Hot,	kám.	Milk,	tzam tí.
House,	ham (humm).	Mire,	hátam.
Hunger,	{ vok no le.	Mist,	rang phúm.
	{ stomach nothing is.	Mole,	tchá tchú, tú pá.
Hurricane,	rang chai.	Molasses,	nam sing.
Husband,	hasam pa.	Monkey,	mai nák.
Hut,	pam.	Month,	â chang.
Instep,	chi tok.	Moon,	lénú.
Iron,	ján.	More,	á tá.
Ivory,	{ loák vá.	Mother,	á, nú.
	{ elephant tooth.	Mouth,	tún.
Jackall,	hián.	Mud,	há tam.





Nail,	chakín.	Samber deer,	tchok.
Narrow,	tík.	Same,	tam rí.
Navel,	súng.	Sand,	sák.
Neck,	dinkú.	Seed,	hâtúng.
Needle,	mat koi.	Sharp,	áná.
Nest,	â zap.	Shell,	káptúng.
New,	haz án.	Short,	tút, tut le.
Night,	{ rang nak.	Shoulder,	swa kong.
No,	{ sky black.	Shrew,	tsá tsú.
North,	man tai le.	Sick,	kak.
Nose,	ngá.	Silent,	dáng.
Not,	nákúng	Silk,	shóng.
Old,	man.	Silver,	ngúng.
Otter,	haz áng.	Sister,	á ná.
Path,	rá rom.	Skin,	kan.
Perpendicular,	lam.	Sky,	rang.
Pig,	á jóng.	Sleep,	mik nú, mik nu le.
Pigeon,	vák.	"	zip, zip le.
Plantain,	yâ.	Slip,	nan.
Point,	nga.	Small,	hí le.
Pond,	júng.	Smoke,	van kút.
Poreupine,	tí kút.	Snake,	pú.
Porpoise,	â zí.	Soft,	naí.
Pull,	te ít ?	Son,	ko sá.
Quail,	lín pau he.	Sour,	tsánam.
Quick,	â múk.	Spear,	pá.
Rain,	kí kí.	Spider,	mák.
To Rain,	rang vat.	Spirit,	zú.
Rat,	rang vat le.	Squirrel,	ú rút.
Raven,	jú, zú.	Star,	litzú.
Raw,	â lá.	Stay,	támúk.
Red,	áráng.	Steel,	jántú.
Rhinoceros,	khí.	Stone,	lóng.
Rice, as grain,	mai nú.	Stop,	támúk, zákaf.
" husked,	tzá.	Storm,	rang chai le.
" boiled,	vông.	Straight,	jang mai.
Ripe,	sa.	Straw,	tásá.
River,	júm.	Stream,	swáká.
" small,	shwa ko.	Sunshine,	rang han.
Road, large,	shwa nú.	Sweet,	tí.
" small,	lum, lum twa.	Take,	pau tú.
Rock,	lum nú.	Tank,	tí kút.
Roof,	lóng.	Thick,	tat.
Root,	ham tok.	Thin,	pák.
Rope,	pan ting.	Thirst,	lá.
Rum,	rú.	Thorn,	húk.
Rust,	zú.	Throat,	dín kú.
Sago,	yán, ján.	Thunder,	rang dúng.
" large,	zí.	Tiger,	tchánú, chánú.
Salt,	zók.	Tight,	chuk le.
	húm.	Tobacco,	há hing.



To-day,	á ní.	8.	a chut, chut.
Toe,	chikí.	9.	a kú, kú.
To-morrow,	nai ní.	10.	a bn, bn.
Tongue,	lé.	Come,	pau hí.
Tooth,	vá.	Go,	pau la.
Tough,	kai.	Pull,	lin he.
Tree,	pan.	Lift,	pai ha.
Tribe,	nok,	Take,	„ tu.
Truce,	mímúl.	Bring,	la he, pau he.
True,	hotzing.	Bring water,	tí la he.
Unable,	mun túak.	Bring fire,	va chup hai.
Vegetable,	súi.	Bring fuel,	he la hai.
Village,	tíng kong.	„	ha pau hai.
Waist,	khê da.	Bring more,	lá hai.
Wait,	támúk.	Bring men,	mí jen hai.
Water,	tí.	What's that?	tem áváng?
Wax,	mú.	What hill?	tem hápá?
Weasel,	â kan.	What stream?	tem swáka?
Weed,	pau.	What tree?	tem pan ai?
Well,	tí kaí.	What name?	bílám an pú.
Wet,	kah le.	What's this?	hai tem ai?
What?	tem.	How large?	ávát chong pú.
Wind,	vin.	How far?	ávát tá tai pú.
Wolf,	shán.	„	abat ta.
Woman,	shí kú.	What making?	tem zing pú?
Wool,	roan mú.	Why?	tem mók pú.
Wrist,	chak { lo ding.	Where come from?	azang to pia?
Yam,	tong.	„	tem tung oi pú.
Yes,	tai le.	Where gone to?	o ma ai o man pú?
Young,	sá.	Are there deer?	mai te chá?
1.	e tá, tá.	Are there fish?	nya te chá?
2.	a ní, ní.	Yes,—good,	tai le—mai.
3.	a jam, jum.	No—bad,	man tai—man mai.
4.	a lí, lí.	None,	man tai le.
5.	a gá, gá.	Cut this,	hut ko.
6.	a rok, rok.	Throw this rub-	
7.	a nat, nut.	bish away,	avátko vúng va.
		Work quick,	kí kí le.

This is mainly Banpará Nágá. Contiguous tribes often have so many words in common as to be able to converse; while in other cases the differences are so great, that the dialects are mutually unintelligible.

The letter *r* at end of a word seems rare, so far I have not met a single case, and I am inclined to think it is never used, inasmuch as all Assamese words used by them that so end, have the final *r* turned into *t*, as khar (gunpowder) to khat, kapor (cloth) into kaput, &c.





The letter *s* also seems to follow the same rule. In saying *mas* (fish), they say *mat*, and *got* for *gos* (tree).

Some words are very widely used as 'rang,' which applies to most atmospheric phenomena, and may even be traced in their word for 'god' and 'devil'. Nágá ideas of Divine persons being very limited, the same word that stands for 'devil' also serves for 'god.' Indeed their god at best is a local and generally malignant sprite, who can be propitiated by small presents of eatables.

The word 'mai' is very generally used as prefix to names of animals. The word *good* seems derived from this source, and it is equally suggestive to note that the word for *sweet*, *tí*, means also *water*.

Generally speaking, Banpará Nágá is as monosyllabic as it can be, and in speech is cut up short and jerky, especially when they are excited.

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Part II.—PHYSICAL SCIENCE.

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ON DIFFERENTIAL GALVANOMETERS,—  
by LOUIS SCHWENDLER.

(Continued from page 152, Vol. XLI, Part II, 1872.)\*

The first part of this investigation concluded with the following question :

*What general condition must be fulfilled in the construction of any differential galvanometer in order to make a simultaneous maximum possible with respect to an alteration of external resistance in either of the differential branches ?*

To answer this question, it will be necessary to remember, that the condition of a simultaneous maximum sensitiveness at or near balance was expressed by 3 equations, namely,—

$$\frac{(w - g)(w' + g') + f(w + w' + g' - g)}{p(g - w)g'} = \frac{2(g + w + f)}{2\sqrt{g}\sqrt{g'} - p(g + w)} \dots \text{II}$$

$$\frac{(w' - g')(w + g) + f(w + w' + g - g')}{\frac{(g' - w')}{p} \cdot g} = \frac{2(g' + w' + f)}{2\sqrt{g}\sqrt{g'} - \frac{g' + w'}{p}} \dots \text{II'}$$

and

$$g' + w' - p \frac{\sqrt{g'}}{\sqrt{g}} (g + w) = 0 \dots \text{I}$$

$g$  and  $g'$  being the resistances of the two differential coils,  $w$  and  $w'$  the two resistances at which balance actually arrives,  $f$  the total resistance in the battery branch, and  $p$  an absolute number expressing what was termed the

\* Read before the Asiatic Society of Bengal, 6th March, 1872.



"mechanical arrangement" of the differential galvanometer under consideration.

By these three equations, which are independent of each other,  $g$ ,  $g'$  and  $p$  can be expressed in terms of  $w$ ,  $w'$  and  $f$ .

By equation I we have at or very near balance :

$$p = \frac{g' + w'}{g + w} \cdot \frac{\sqrt{g}}{\sqrt{g'}} \text{ which value substituted in equations II and II'}$$

gives :

$$\frac{(w - g)(w' + g') + f(w + w' + g' - g)}{(g' + w')(g - w)g'} = \frac{2(g + w + f)}{(g' - w')(g + w)} \dots \text{II}$$

and

$$\frac{(w' - g')(w + g) + f(w + w' + g - g')}{(g + w)(g' - w')g} = \frac{2(g' + w' + f)}{(g - w)(g' + w')} \dots \text{II'}$$

and from these two equations  $g$  and  $g'$  may be developed.

This is best done by subtracting equation II from equation II' when after reduction we get :—

$$(w'g - wg')(w'g + wg' + gg' + ww') = -f(g + g' + w + w')(w'g - wg') \dots \text{III}$$

Now it must be remembered, that with respect to our physical problem,  $f$ ,  $w$ ,  $w'$ ,  $g$  and  $g'$  represent nothing else, but electrical resistances, and that they have, therefore, to be taken in any formula as quantities of the same sign (say positive).

Consequently the above equation III would contain a mathematical impossibility (a positive quantity equal to a negative quantity), whenever the common factor  $w'g - wg'$  is different from zero.

In other words equation III can only be fulfilled if we always have :

$$w'g - wg' = 0 \dots \text{IV}$$

This simple relation between the resistances at which balance arrives and the resistances of the two differential coils, expresses not only the necessary and sufficient condition under which a simultaneous maximum sensitiveness can exist, but it also affords an easy means of getting at once those special values of  $g$ ,  $g'$  and  $p$ , which only solve the physical problem.

Substituting the value of either  $g$  or  $g'$ , as given by equation IV in equations II and II' and developing  $g$  and  $g'$  we have :

$$*g = -\frac{1}{3} \left( w + f \frac{(w + w')}{2w'} \right) + \frac{2}{3} \sqrt{w^2 + \frac{w}{w'}(w + w')f + \frac{(w + w')^2}{16w'^2}f^2} \dots a.$$

$$*g' = -\frac{1}{3} \left( w' + f \frac{(w + w')}{2w} \right) + \frac{2}{3} \sqrt{w'^2 + \frac{w'}{w}(w + w')f + \frac{(w + w')^2}{16w^2}f^2} \dots b.$$

the negative signs of the square roots having been omitted since they would

\* See note at end.





obviously make  $g$  and  $g'$  negative, values which cannot solve the physical question.—

Further, if we introduce the ratio

$\frac{g'}{g} = \frac{w'}{w}$ , given by equation IV, into equation I, and develop  $p$  we get :

$$p^2 = \frac{w'}{w} \dots\dots\dots c.$$

This latter expression shows the very simple relation which must exist between the *mechanical arrangement* of any differential galvanometer and the two resistances at which balance is arrived at, in order to make a simultaneous maximum sensitiveness possible.

Thus if the ratio of the two resistances at which balance arrives is fixed, the mechanical arrangement  $p$  cannot be chosen arbitrarily, but must be identical with this ratio. This is in fact the answer to the question put at the beginning of this paper.

However, the meaning of this result will be made even still clearer if we revert to equation I, by which we have

$$p \frac{\sqrt{g'}}{\sqrt{g}} = \frac{g' + w'}{g + w} = C \dots\dots\dots I.$$

expressing the ratio between the total resistances in the two differential branches, when balance is established, and which ratio is generally known under the name *Constant of the Differential Galvanometer*.

Substituting in the above expression I the value of  $\frac{g'}{g} = \frac{w'}{w}$  from equation IV we get at once

$$\frac{w'}{w} = C \dots\dots\dots d.$$

and as a second answer to the question put at the beginning of this paper we have therefore :

*A simultaneous maximum sensitiveness with respect to an alteration of external resistance in either branch of any differential galvanometer can be obtained only, if the constant of the differential galvanometer is equal to the ratio of the two resistances at which balance arrives, and this clearly necessitates that the resistances of the respective coils to which  $w$  and  $w'$  belong should stand in the same ratio.*

The general problem may now be considered as solved by the following four general expressions :

$$g = -\frac{1}{2} \left( w + f \frac{(w + w')}{2w'} \right) + \frac{3}{2} \sqrt{w^2 + \frac{w}{w'} (w + w') f + \frac{(w + w')^2}{16w'^2} f^2} \dots a.$$

$$g' = \frac{w'}{w} g \dots\dots\dots b.$$



$$p^2 = \frac{w'}{w} \dots\dots\dots c.$$

$$C = \frac{w'}{w} \dots\dots\dots d.$$

*Additional remarks.*

In the foregoing it has not been shewn that the values  $g$  and  $g'$ , expressed by equations  $a$  and  $b$ , must necessarily correspond to a maximum sensitiveness of the differential galvanometer, because it was clear *à priori*, that the function by which the deflection is expressed is of such a nature that no minimum with respect to  $g$  and  $g'$  is possible. However, to complete the solution mathematically, the following is a very short proof that the values of  $g$  and  $g'$  really do correspond to a maximum sensitiveness of the differential galvanometer under consideration.

Reverting to one of the expressions for the deflection  $a^0$  which any differential galvanometer gives before balance is arrived at, we had :

$$a^0 \propto K \frac{\sqrt{g}}{N} \Delta \text{ and as the increase of deflection at or near balance is}$$

identical with the deflection itself, and further as the law which binds the resistance of the differential coils to the other resistances in the circuit, in order to have a maximum sensitiveness, is of practical interest only when the needle is at, or very nearly at, balance, we can solve the question at once by making  $a^0$  a maximum with respect to  $g$  and  $g'$ , if we only suppose  $\Delta$  constant and small enough, and as  $K$  is known to be independent of  $g$  and  $g'$ , the deflection  $a^0$  will be a maximum if  $\frac{\sqrt{g}}{N}$  is a maximum for any constant  $\Delta$  (zero included).

Further we know that  $g' = Cg$  which value for  $g'$  in  $N$  substituted will make the latter a function of  $g$  only and consequently  $\frac{\sqrt{g}}{N}$  also. We have therefore to deal with a single maximum or minimum, and according to well-known rules we have :

$$\frac{da}{dg} = \frac{N - 2g \frac{dN}{dg}}{2\sqrt{g} N^2} = \frac{U}{V}$$

and

$$\frac{d^2a}{dg^2} = \frac{V \frac{dU}{dg} - U \frac{dV}{dg}}{V^2}$$





but

$$\frac{da}{dg} = 0 \quad \text{it follows that} \quad U = 0$$

$$\therefore \quad \frac{d^2a}{dg^2} = \frac{1}{V} \frac{dU}{dg}$$

Now

$\frac{dU}{dg} = - \left( \frac{dN}{dg} + 2g \frac{d^2N}{dg^2} \right)$ , but  $\frac{dN}{dg}$  as well as  $\frac{d^2N}{dg^2}$  being invariably positive, it follows that  $\frac{dU}{dg}$  is invariably negative, and as further  $V$  is always positive it follows finally that  $\frac{d^2a}{dg^2}$  is always negative, or the value of  $g$  obtained by equation  $\frac{da}{dg} = 0$  corresponds to a maximum sensitiveness of the differential galvanometer.

In a similar way it can be shewn that the value of  $g'$  obtained by equation  $\frac{da}{dg'} = 0$  corresponds also to a maximum sensitiveness of the differential galvanometer.

This is in fact a second and far more simple solution of the problem. However, it is by no means as general, nor does it adhere as closely to the spirit of analysis as the first more complicated solution.

*Effect of Shunts.*—It is clear that the introduction of shunts cannot alter the general results as given in equations  $a$ ,  $b$ ,  $c$ , and  $d$ , as long as the shunts are used merely for the purpose of carrying off a fixed quantity of current without in themselves having any direct magnetic action on the needle.

However, to avoid misunderstanding, it is well to remember that in the case of shunts being used, the values to be given to  $w$  and  $w'$  in the above equations are *not* those at which balance actually arrives, but those at which balance would arrive if no shunts were used, *i. e.*, the resistance at which balance is established when using shunts must be multiplied by the multiplying power of their respective shunts, before they are to be substituted in the equations  $a$ ,  $b$ ,  $c$  and  $d$ .

*Mechanical arrangement designed by p.*—The condition which must be fulfilled in the construction of any differential galvanometer to make a simultaneous maximum sensitiveness possible, was expressed by

$$p^2 = \frac{w'}{w} \dots\dots\dots c.$$

while  $p = \frac{m' n'}{m n}$  and it will be now instructive to enquire what special physical meaning equation  $c$  has.



By  $m$  was understood the magnetic effect of an average convolution (*i. e.* one of average size and mean distance from the magnet acted upon, when the latter is parallel with the plane of the convolutions) in the differential coil of resistance  $g$ , when a current of unit strength passes through it. Similarly  $m'$  was the magnetic effect of an average convolution in the other differential coil of resistance  $g'$ .

Further  $n$  and  $n'$  were quantities expressed by

$$U = n \sqrt{g}$$

and 
$$U' = n' \sqrt{g'}$$

$U$  and  $U'$  being the number of convolutions in the two coils  $g$  and  $g'$  respectively.

Now we will call  $A$  half the cross section of the coil  $g$  (cut through the coil normal to the direction of the convolutions) and which section, as the wire is to be supposed uniformly coiled, must be uniform throughout.

Thus we have generally

$$\frac{A}{c(q + \delta)} = U$$

wherever the normal cut through the coil is taken.

$c$  is a constant indicating the manner of coiling, either by dividing the cross-section  $A$  into squares, hexagons or in any other way, but always supposing that however the coiling of the wire may have been done, it has been done uniformly throughout the coil. (This supposition is quite sufficiently nearly fulfilled in practice because the coiling should always be executed with the greatest possible care, and further the wire can be supposed practically of equal thickness throughout the coil).

$q$  is the metallic section of the wire, and  $\delta$  the non-metallic section due to the necessary insulating covering of the wire.

Further we have

$$g = U \frac{b}{q\lambda}$$

where  $b$  is the length of an average convolution and  $\lambda$  the absolute conductivity of the wire material supposed to be a constant for the coil.

Now, for brevity's sake, we will suppose that  $\delta$ , the cross-section of the insulating covering, can be neglected against  $q$  the metallic cross-section of the wire.

Consequently we have

$$\frac{A}{cq} = U \text{ (approximately)}$$

and 
$$g = U \frac{b}{q\lambda}$$

$$\therefore U = \sqrt{\frac{A\lambda}{bc}} \cdot \sqrt{g}$$



or 
$$n = \sqrt{\frac{A\lambda}{bc}}$$

similarly 
$$n' = \sqrt{\frac{A'\lambda'}{b'c'}}$$

$$\therefore \frac{n'}{n} = \sqrt{\frac{A'\lambda' bc}{A\lambda b'c'}}$$

But using wire of the same conductivity in both the differential coils, which should be as high as is possible to procure it, and further supposing the manner of coiling to be identical in both coils, we have

$$\lambda = \lambda'$$

$$c = c'$$

$$\therefore \frac{n'}{n} = \sqrt{\frac{A'}{A} \cdot \frac{b}{b'}}$$

Further we know that if the shape and dimensions of each coil are given, and in addition also their distance from the magnet acted upon, it will be always possible to calculate  $m$  and  $m'$ , though it may often present mathematical difficulties, especially if the forms of the two coils differ from each other and are also not circular. This latter condition is generally necessitated in order to obtain the greatest absolute magnetic action of each coil in as small a space as possible.

However it is clear that we may assume generally that the two coils have each an average convolution of identical shape and of the same length, placed at an equal distance from the magnet acted upon, and that therefore the magnetic action of each coil is dependent on the number of convolutions only.

In this case we have evidently

$$m = m'$$

$$b = b'$$

$$\frac{n'}{n} = \sqrt{\frac{A'}{A}}$$

and as  $p = \frac{n'}{n} \cdot \frac{m'}{m}$

we have finally

$$\frac{A'}{A} = \frac{w'}{w} \dots\dots\dots e.$$

Equation *e* shows at once that under the supposed conditions, *i. e.*, when the average convolutions in each coil are of equal size and shape, the wire used in either coil is of the same absolute conductivity, and that the thickness of the insulating material can be neglected against the diameter of the wire :



The wire used for filling each coil must be invariably of the same diameter, otherwise a maximum sensitiveness is impossible.

How the above simple law expressed by equation *c* would be altered, when the given suppositions were not fulfilled, must be found by further calculation, but as the latter is intricate and a more general result is not required in practice, I shall dispense at present with this labour.

*Special Differential Galvanometers.*—Here shall be given the special expressions to which the general equations *a*, *b*, *c* and *d*, are reduced when certain conditions are presupposed.

*1st case.*—When *w* and *w'*, the two resistances at which balance is arrived at are so large that *f*, the resistance of the testing battery can be neglected against either of them without perceptible error. Substituting therefore *f* = 0 in equations *a*, and *b*, we get :

$$g = \frac{w}{3} \dots\dots\dots a.$$

$$g' = \frac{w'}{3} \dots\dots\dots b.$$

and the other two remain as they are namely :

$$p^2 = \frac{w'}{w} \dots\dots\dots c.$$

$$C = \frac{w'}{w} \dots\dots\dots d.$$

*2nd case.*—When the battery resistance *f* cannot be neglected against either *w* or *w'*, but when the two resistances at which balance is arrived at are invariably equal.

Thus substituting in the general equation

$$w = w' = w$$

we get

$$g = g' = g = -\frac{w+f}{3} + \frac{1}{3}\sqrt{4w^2 + 8fw + f^2} \dots\dots\dots a, b.$$

$$p^2 = 1 \dots\dots\dots c.$$

$$C = 1 \dots\dots\dots d.$$

*3rd Case.*—When the conditions given under 1 and 2 are both fulfilled

or  $w = w' = w$

and  $f = 0$

then we have

$$g = g' = g = \frac{w}{3} \dots\dots\dots a, b.$$

$$p^2 = 1 \dots\dots\dots c.$$

$$C = 1 \dots\dots\dots d.$$

The very same result which was obtained by direct reasoning at the beginning of this paper.





*Applications.*—Though the problem in its generality has now been entirely solved, it will not perhaps be considered irrelevant to add here some applications.

For our purpose differential galvanometers may be conveniently divided into two classes, *viz.*, those in which the resistances to be measured vary within narrow limits, and those where these limits are extremely wide.

To the first class belong the differential galvanometers which are used for indicating temperature by the variation of the resistance of a metallic wire, exposed to the temperature to be measured. As for instance, C. W. Siemen's Resistance Thermometer for measuring comparatively low temperatures, or his Electric Pyrometer for measuring the high temperature in furnaces.

It is clear that for such instruments the law of maximum sensitiveness should best be fulfilled for the average resistance to be measured, which average resistance under given circumstances is always known.

To the second class belong those differential galvanometers which are used for testing Telegraph lines, at present the most important application of these instruments. In this case each differential coil should consist of separate coils connected with a commutator in such a manner that it is convenient to alter the resistance of each coil according to circumstances, *i. e.*, connecting all the separate coils in each differential coil parallel, when the resistances to be measured are comparatively low, and all the separate coils consecutively, if the resistances to be measured are high, &c., &c., fulfilling in each case the law of maximum sensitiveness for certain resistances, which are to be determined under different circumstances differently, but always bearing in mind that it is more desirable to fulfil the law of maximum sensitiveness for high resistances, when the testing current in itself is obviously weak, than for the low resistances.

An example will shew this clearer. Say for instance a differential galvanometer has to be constructed for measuring resistances between 1 and 10,000. A Siemen's comparison box of the usual kind  $\left(\frac{1}{10,000}\right)$  being at disposal, it will be convenient and practical to decide that the two differential coils should be of equal magnetic momentum, from which it follows that  $C$  as well as  $p$  must be unity, or in other words that the two coils must be of equal size, shape and distance from the needle, and must also have equal resistances, *i. e.*, must be filled with copper wire of the same diameter. The resistance of each coil is then found by

$$g = -\frac{w + f}{3} + \frac{1}{3} \sqrt{4w^2 + 8fw + f^2}$$

where  $f$  is the resistance of the battery and  $w$  a certain value between



1 and 10,000, the two limits of measurement. The question now remains to determine  $w$ .

It is clear that the law of maximum sensitiveness has not to be fulfilled for either limit, because they represent only one of the 10,000 different resistances which have to be measured, but it is also clear that to fulfil the law for the average of the two given limits would be equally wrong, inasmuch as the maximum sensitiveness is far more required towards the highest than the lowest limit. We may assume, therefore, that it is desirable to fulfil the law for the average of the average and the highest limit, which gives

$$w = 7500$$

against which the resistance of the battery may always be neglected.

Consequently we have

$$g = \frac{w}{3} = 2500$$

for each coil.

Now if the coil be small, and consequently the wire to be used for filling it is thin, the value  $g = 2500$  wants a correction to make allowance for the thickness of the insulating material, by which  $g$  becomes somewhat smaller.\*

Before concluding I may remark that the question of the best resistance of the coil, when the resistance to be measured varies between two fixed or variable limits, can be solved mathematically by the application of the Variation Calculus.

\* These expressions for  $g$  and  $g'$  must be corrected, if the thickness of the insulating covering of the wire cannot be neglected against its diameter. The formula by which this correction can be made was given by me in the *Philosophical Magazine*, January, 1866, namely

$$\text{corrected } g = c g \left( 1 - 4 \sqrt{g m^2} \right)$$

where  $g$  = the resistance to be corrected and expressed in Siemen's Units,

$$\text{and } m = \delta^2 \sqrt{\frac{c \pi \lambda}{AB}}$$

$\delta$  = radial thickness of the insulating covering expressed in millimetres.

$c$  = a co-efficient expressing the arrangement adopted for filling the available space uniformly with wire. Namely, if we suppose that the cross section of the coil, by filling it up with wire, is divided into squares we have  $c = 4$ , if in hexagons  $c = 3.4$ , &c., &c.

$\lambda$  = absolute conductivity of the wire material ( $Hg = 1$  at freezing point).

$A$  = half the section of the coil in question when cut normal to the direction of the convolutions, and always expressed in square millimetres.

$B$  = length of an average convolution in the coil, and expressed in metres.



ON THE LAND-SHELLS OF PENANG ISLAND, WITH DESCRIPTIONS OF THE  
ANIMALS AND ANATOMICAL NOTES ; *part second*,\* *HELICACEA*,—  
by DR. F. STOLICZKA.

[Read and received 7th August, 1872.]

(With plates I to III.)

In this group of pulmoniferous land-shells I shall notice twenty three species, belonging to the *Zonitidæ*, *Helicidæ*, *Bulimidæ*, *Clausiliidæ*, *Philomycidæ*, *Pupidæ*, *Streptaxidæ*, *Veronicellidæ* and *Vaginulidæ*. The majority of the species are new, except a few previously described from the neighbouring country, and on one or two of such commonly distributed species, as are *Stenogyra gracilis* or *Ennea bicolor*.

Nearly all the species had been collected with the animals living, and I have spared no pains in order to make the detailed anatomical account as complete, as it appears desirable for a correct generic determination.

I scarcely need to mention, that on the whole the fauna is characteristically Malayan, the same fauna which extends from the Philippine islands through Burma and Arakan into the warm valleys of Sikkim. In the plains of Bengal it mixes with the Indian fauna proper.

I cannot help repeating the urgent request to my conchological friends in India, that they may favour me with live specimens of the species of shells occurring in their neighbourhood. In the *Helicacea* especially, the anatomical characters are indispensable for a correct generic determination, and without this it will not be possible to obtain a natural arrangement of our terrestrial Mollusca.

*Fam. Zonitidæ.*

*RHYSOTA† CYMATIUM*, (*Benson*). Pl. i, figs. 1-3 and pl. ii, figs. 13-15.

*Helix Cymatium*, Benson, apud Pfeiffer, Novit. Conch. I, p. 58, pl. xvii, figs. 1-2.

Penang specimens, which slightly differ in the height of the spire, (see figs. 1-3, pl. i,) agree in almost every point of structure with the type shell, described by Pfeiffer from Lancavi, a small island situated a few miles north of Penang. The increase of the volutions is in both exactly the same, the upper side of the whorls is marked with fine oblique rugosities, the lower is spirally striated; in fresh specimens the former is silky brown, the lower olivaceous brown, the inside of the aperture is in full grown specimens cover-

\* Continued from J. A. S. B., for 1872. Vol. XLI, pt. ii, p. 271.

† Albers, *Heliceen*, edit. E. v. Martens, p. 54.



ed with a kind of a nacreous callose layer. The only noticeable difference consists in the narrowness of the umbilicus, its width being in all the Penang specimens, which I obtained, about one twelfth of the diameter of the shell, while in Benson's type it is only one seventh of the same diameter.

The species is found all over Penang hill from elevations of about 300 to 2500 feet, and both on the ground as well as on trees, but chiefly on the latter; it is, however, not common, and adult shells are indeed extreme rarities.

The closely allied *Rh. densa*, (Adams),\* only differs by a slightly smaller number of whorls, the last being much wider. *Rh. Chevalieri*, (Souleyet), differs in the same character, though it has the umbilicus of exactly the same size as the Penang variety of *cymatium*.

The animal is stout and rather short, its total length being less than twice the diameter of the shell; the posterior part of the body is the shorter one, and above rather sharply ridged; it ends with a large gland and a projecting horn above it. The whole body is uniform more or less dark brown, laterally strongly warty and obliquely grooved; the pedal row is very distinctly margined on both sides with an impressed line, and the margin of the foot below it is broad, smooth, marked with alternately brown and pale oblique stripes, so as to give the appearance of a variegated fringe. The eye peduncles and tentacles are of usual proportionate length, dark brown or even blackish, the latter with pale tips. On the whole, the general colour of the specimens varies a great deal; the young are mostly pale brown with an olivaceous tinge, while in old ones the neck, including the head and pedicles, become almost black.

The mantle is somewhat paler than the body, its edge moderately thickened. There are two small linguiform shell-lobes present, a right one, just below the inner or posterior angle of the aperture of the shell, thus playing on the inner lip, and producing its moderately distinct nacreous and callose structure. The other lobe lies below the outer periphery of the shell on the basal side; it projects from the outer end of a rather elongated very narrow fringe, which is separated from the edge of the mantle itself. The right neck-lobe is entire, thick, rounded, somewhat freely projecting at the lower or umbilical end. The left neck lobe is divided in two portions, the upper elongately rounded, the lower much narrower, with the upper end somewhat pointedly extended. The edge of the mantle which secretes the umbilical margin of the peristome is internally considerably thickened, (comp. pl. ii, fig. 13).

I have not been able to see satisfactorily the exact structure of the genital system, but, as far as it could be examined, it appears almost entirely to agree with that of *Rhysota semiglobosa*, figured by Semper. There certainly are no appendages present—neither on the penis, nor on the seminal duct or uterus.

\* E. v. Martens, Ost-Asiat. Expedit. p. 230, pl. 10, fig. 1.



The jaw is smooth, semilunar, with a round projection in the middle of the concave edge; it is about 2.5 m.m. broad.

The radula is comparatively of very great length. In a middle-sized specimen it measured 7 m.m. in length and 3 m.m. in breadth, although one of the ends was not quite perfect. I counted 106 transverse rows and about 141 teeth in each row. The centre tooth has a comparatively short point without any lateral denticles, and is somewhat smaller than the adjoining laterals. The first of these has a long, laterally bent, rather blunt projection; the following very gradually decrease in size and the middle cusp becomes gradually more pointed and curved, while the basal plate decreases. With about the fiftieth tooth the end begins to become bicuspid, and on about the hundredth tooth on either side, the two cusps are sharpest and best developed.

Semper (Reisen im Archipel der Philipp., Vol. III, p. 68) says that *Rhysota* does not possess any developed shell lobes of the mantle. In the present species their existence is undeniable, and still all the other characters of the animal and shell point towards the greatest relation of *R. cymatium* to other typical species of the genus, which scarcely would have any meaning, if it were restricted in the sense given to it by Semper. I very much doubt, that all the species with polished lower surface of the shell, referred by Semper to *Rhysota*, have no shell-lobes. How then do they produce the smoothness of the shell? I generally found shell-lobes essential for that purpose. But supposing some of the species really had no shell-lobes, this would be no sufficient reason for excluding any other species which possess them from *Rhysota*; for in *Xesta* we have a similar mixture of forms with and without shell-lobes.

Thus the only anatomical difference, which remains to be considered as distinguishing *Rhysota* from *Xesta*, is the simple form of the genital organs in the former. How far this character is really reliable for generic distinctions, is a point by no means easily settled, as I had already occasion to notice when speaking of the anatomy of the two species of *Sitala* (*Conulema*, olim) (Journ. A. S. B., Vol. xl, Pt. ii, 1871, p. 236 &c.), *S. atlegia* and *S. infula*.

When we compare the characters relating to the presence or absence or form of the mantle lobes, we meet with a perfect similarity between *Rhysota* and *Rotula*. The distinction between the two merely rests in the presence of an amatorial gland in the latter genus, while the shells only differ in the upper side of *Rhysota* being irregularly corrugated, and in *Rotula* reticulately striated, or transversely costulated.

In speaking of the shell of *Rhysota*, Albers gives the peculiarly rugose upper surface as one of the most important characters of the genus.



ROTULA\* BIJUGA, n. sp., Pl. i, figs. 4-7 and pl. ii, figs. 16-18.

R. depresse conoidea et suborbiculata, vel late conica, angustissime umbilicata, tenui, cornea, pallide succinea; anfractibus 5·5 ad 6·5, suturâ simplici, suprâ rare filiforme marginata, junctis, lente accrescentibus, in superficie superiore convexiusculis, costulis transversis obliquis, confertis, striis spiralibus confertissimis ac plus minusve distinctis intersectis, crispatulis seu subgranulosis, ornatis; ultimo ad peripheriam acute carinato, ad basin modice inflato, nitido, sublævigato, striis incrementi radiantibus atque alteris spiralibus sub-obsoletis notato, medio concaviusculo; apertura angulatim semilunari, paulum obliqua, labio tenuissimo vix distinguendo, labro ad marginem tenui, neque expanso, neque incrassato, ad insertionem umbilicalem brevissime reflexo instructa.

Dimensiones varietatum frequentium:—

Diam. major.	D. minor.	Alt. testæ.	Alt. aperturæ.	Lat. aperturæ.
a. 14·5	13·5	11·0	6·0	7·6 m.m.
b. 16·2	15·0	10·9	6·6	8·2 „
c. 17·4	15·6	12·0	7·2	9·2 „
d. 17·4	16·0	10·9	7·0	9·0 „

Diam. maj. speciminis maximi 18·8 m.m.

It will be seen from the above measurements, which are taken from the four figured specimens, that the height of the shell is very variable, but the increase of the whorls is very nearly quite constant. The upper convexity of the whorls also slightly varies; the sides of the spire are generally nearly straight, more rarely conspicuously convex; occasionally the peripheral keel is somewhat projecting above the suture. The ornamentation is characteristically that of *Rotula*, reticulately sculptured above, nearly smooth below. The transverse ribs on the upper surface are traversed by fine spiral lines, which generally only produce a slight undulation in the direction of the ribs, sometimes, however, a fine granulation is formed. As regards form, the present species very closely resembles the Burmese *R. anceps*, (Gould), and also the South Indian *R. Shiplayi*, the first has, however, the upper costulation very fine and no spiral striæ, while the latter has both much stronger developed, producing a granular surface, and the shell is also more solid. The third very closely allied species is *R. indica*, differing principally by a greater width of the last whorl, and also by a stronger sculpture.

\* Comp. Journ. A. S. B., 1871, Vol. xl, pt. ii, p. 231. The name *Rotula* has also been applied in the ACTINOZOA, but if our zoological classification should make such rapid progress, as it has done lately, it will, I think, in no long time be almost impossible to find new names for the generic groups, and we shall be forced to modify the existing rules at least so far that the same name may become reapplicable in at least the five or six principal divisions of the animal kingdom. A further relaxation of the rule would scarcely prove beneficial and would hardly be necessary.



The animal of the Penang species, when fully extended, equals in length about twice the longer diameter of the shell ; back roundly flattened above, foot posteriorly obtusely ridged, terminating with a large gland which is superseded by a small horn ; pedal row very distinct and the edge of foot below obliquely striated. The general colour of the body is pale or livid grey, with a general reddish tinge when full grown. A pale yellow (in young), or more or less distinctly cinober red (in adults), stripe extends along the centre of the back and the superior ridge of the foot, the former is bounded on each side by a broad black stripe, originating at the base of each peduncle and continuing to the mantle, and below this stripe there is again a yellowish or red line. The posterior red band is only edged with black. The sides of the foot, both anteriorly and posteriorly, are more or less distinctly variegated with impure black and tinged with red ; front of head between the two pedicles and tentacles with a black spot ; pedicles and tentacles generally greyish, the latter with a reddish tinge, and with pale, rather large, globular tips, the former with a black ring at the base where the longitudinal black bands begin.

The mantle is moderately thickened. The right shell lobe is entirely obsolete, or only indicated by a very slight extension of the edge, a short distance below the upper angle of the aperture of the shell. Sole of foot divided by a longitudinal groove. The right neck lobe is large and extends as a moderately broad fringe to near the retractor muscle where it terminates with a free end. The left neck lobe is smaller with a linguiform free outer end. The left outer edge of the mantle is externally also entire, like the right one, but about the middle of the basal portion it has internally a distinct lobe, about 2 m.m. in length, which in its situation strictly speaking lies between the shell and the neck lobe ; but as it becomes reflected with its edge over the shell, it has to be regarded as the representant of the left shell lobe. The lower portion of the left neck lobe is only a thickened swelling, extending as a narrow inner rim of the edge of the mantle to near the umbilicus. Both the right and left neck lobe have a large black spot, in continuation of the lateral black bands of the back.

The general anatomy does not differ in any essential point from that of *R. anceps*, as briefly noticed by me in Journ. A. S. B., Vol. xl, pt. II, 1871, p. 233, pl. xvii, fig. 1.

The jaw is semilunar, perfectly smooth, with obtusely rounded corners, and a slight rounded projection in the centre of the concave edge ; it is about 1.5 m.m. broad.

The length of the radula is about 4.5, and its breadth above 1.5 m.m. ; it is composed of about 105 transverse, nearly straight rows of teeth, there being about 121 teeth in each row. The form of the teeth again very closely resembles that of *Rot. anceps*, (loc. cit.). All the points extend beyond the upper edge of the basal plate ; the central is somewhat widened below



the terminal point, contracted in the middle, but it has no distinct denticles at the sides. The laterals gradually become more and more turned, and curved, with a small inner and scarcely a trace of an outer denticle; up to the 20th they very gradually diminish in size, then a very slight break follows, the 21st being somewhat sensibly smaller and first distinctly bicuspid at the tip, while at the same time the size of the basal plate has much diminished, until in the last teeth it almost entirely becomes obsolete; the two terminal cusps on the other hand become gradually more and more equal.

The genital organs have a distinct amatorial gland, possessing near its origin a large globose appendage, internally composed of an elliptical largely cellular mass, in which the cells are concentrically arranged with their longer diameter perpendicular to the walls of the ellipse. The posterior part of the gland is filled with a finely granular substance,—probably calcareous particles. The vas deferens has only one slight enlargement about the middle of its length; it consisted in a simple thickening of the walls, but I could not trace any calcareous particles in it. Towards the end, where the penis is lodged, the tube is widest and somewhat curved, but there are no other appendages, or calcareous sacs accompanied with a flagellum, present, such as have been observed in many other species of *Rotula*.

*SITALA*\* *CARINIFERA*, n. sp. Pl. i, fig. 8.

Testa globose conoidea, cornea, apice obtusula, angustissime perforata; anfractibus quinque, gradatim accrescentibus, convexe angulatis, sutura simplici junctis, transversim minutissime striolatis, superis infra medium carinis filiformibus duobus ornatis, ultimo ad peripheriam tricarinato, basi planate convexiusculo, lævigato; apertura semilunari, verticali, non descendente, labro extus tenuissimo, in regione columellari paululum reflexiusculo.

Diam. maj. 2·2, minor 2, alt. testæ 2 m. m.

*Hab.*—'Penang hill,' in foliis *Coffeæ arabicæ*, specimen unicum.

The animal of this species is exactly like that of *S. infula*, figured in pl. xviii, in J. A. S. B., Vol. xl, Pl. ii, for 1871; it has a generally pale brownish grey colour; but having obtained a single specimen, I did not like to sacrifice the shell, in order to notice the internal structure; for when examining these little species one is by no means sure, that he will obtain from a single specimen an insight into the whole anatomy.

The present species is closely allied to the Nilgheri *Helix tricarinata*. Blf., which is also a *Sitala*, and differs by a more depressed and broadly conical shape, and by having a much wider umbilicus.

\* H. Adams proposed this name for *Helix infula*,<sup>†</sup> Bens., as type (P. Z. S. for 1865, p. 408). I had unfortunately overlooked this reference, when I proposed for Benson's *atlegia* (and *infula* and a few others) the name *Conulema*, which must now be regarded as identical with *sitala* (J. A. S. B., xl, pt. II, p. 236.)



*MACROCHLAMYS*\* *STEPHOIDES*, n. sp. Pl. i, fig. 9, and pl. ii, figs. 19-20.

*M. orbiculata*, spira depresso convexiuscula, basi medio concaviuscula, angustissime perforata, tenui, succineo cornea, unicolore, circa umbilicum albescente; anfractibus sex, lentissime accrescentibus, sutura lineari junctis, infra suturam angustissime adpressis, nitidis, fere politis, striis incrementi transversis minutissimis, nonnunquam fere omnino obsoletis, notatis, supra convexiusculis; ultimo ad peripheriam fere uniforme convexo; apertura subsemilunari, vix obliqua, labio per-tenui, labro simplici, ad basin paulum sinuose producto, ad insertionem umbilicalem anguste atque breviter reflexo. Diam. maj. 11·6, d. min. 10·7, alt. 7; alt. apert. cum perist. 4·8, ejusdem lat. 5·6 m.m.

The nearest ally of this species, as regards general character and size, is the Andamanese *Macroch. stephus*,† (Benson), differing from the present species by a somewhat more depressed form and by having the sides of the spire nearly straight or slightly concave, but not convex. *Macroch. hyalina*,‡ Martens, is also very closely allied, it is a larger shell and with a more rapid increase of the volutions, the difference between the smaller and larger diameters being 2·5 m.m. In Burma and Sikkim several other allied forms occur, such as *M. hypoleuca*, *patane*, *petasus*, &c., but they are all smaller and more depressed shells.

The species is rare; I found a single live specimen and half a dozen of old shells at the base of Penang hill, about 300 feet.

The animal is long and very slender, blackish grey above and on the pedicles, paler at the sides of the foot, which has a long and thin horn above the tail gland. Both shell and neck lobes are well developed, the right ones larger than the respective left ones. The two shell lobes are linguiform, and the right one, when fully expanded, covers almost half of the upper surface of the shell. The lower portion of the left neck-lobe is merely represented by a slightly thickened rim, extending from the place of insertion of the left shell-lobe to near the umbilicus.

The jaw is one mill. broad, with a central rounded tooth in the concave edge and with the corners somewhat bent outwardly; a form which is also met with in several other species of *Macrochlamys*.

The radula has not been seen perfect, but it does not appear to have been more than four mill. long, and there appear to have been at least 101 teeth in each transverse row; all with very sharp points; the central with

\* Comp. Journ. A. S. B., vol. xl, pt. ii, 1871, p. 246.

† The figure of this species in Conch. Ind., pl. 62, is taken from a young or imperfect specimen, in which the peculiarly depressed form is not so well discernable as in an adult shell. Fig. 6 on the same plate is incorrect, because it does not shew the sinuately produced median basal portion of the peristome.

‡ Preuss. Exped. nach Ost Asien, II, p. 241, pl. 12, fig. 5.



a distinct denticle on either side, and the last laterals with two small unequal cusps; all have the basal plate obtusely narrowed outwardly.

The genital organs are very similar to those of *M. indicus*, Benson, but much more slender; the amatorial gland is very thin (in a young specimen), there is a small cœcal appendage on the vas deferens, and a flagellum at the base of the penis, just before a swelling filled with calcareous particles.

*MICROCYSTIS*\* *PALMICOLA*, n. sp. Pl. i. fig. 10.

*M.* testa late conica, tenui, cornea, angustissime umbilicata; anfractibus quinque, gradatim accrescentibus, convexiusculis, sutura simplici junctis, supra splendore albide sericino, transversim oblique, minutissime atque confertissime, striolatis, ultimo ad peripheriam acute angulato; basi convexiuscula, olivaceo nitida; apertura subsemilunari, extus angulata, obliqua; labro tenui, simplici, ad basin recedente, ad umbilicum reflexo; labio tenuissimo, vix distinguendo. Speciminis maximi diam. maj. 2·8, d. minor 2·6, alt. 2·2, diam. apert. 1·7, ejusd. alt. 0·95 m.m.

*Hab.*—Penang, sub corticem *Cocco*s *nuciferæ*, haud frequens.

The shell is distinguished from allied species by its comparatively sharply angular last whorl, slightly inflated base and by the peculiar silky and very finely striated upper surface.

The animal when fully extended equals in length about four diameters of the shell; it is rather dark brownish grey, darkest on the tentacles and on the rostrum; posterior gland superseded by a small horn.

*HELICARION*† *PERMOLLE*, n. sp. Pl. i, fig. 11 and pl. ii, figs. 21-23.

*H.* testa depresso inflatæque conoidea, tenuissima, fere membranacea, translucens, pallide lutescente, vix perforata, spira ultimo anfractu multo brevior; anfractibus 4·5, rapide accrescentibus, ad suturam simplicem adpressis, nitidis, convexiusculis, ultimo inflato, ad peripheriam rotundato, transversim lente arcuateque striatulo, ad basin striis spiralibus sub-obsoletis notato; apertura lunari, valde obliqua, labio albescente, minutissime puncticulato, labro tenuissimo, simplici, ad basin valde recedente, ad marginem interiorem umbilici breviter reflexiusculo. Diam. maj. 8·4, d. min. 7·4, alt. 6·3; alt. apert. cum perist. 4, ejusd. lat. 4·3 m.m.

The rather strongly elevated spire, and the membranaceous and transparent structure of the shell, separate this species from the numerous allied forms of the Philippines. The species is rare; I only obtained about half a dozen specimens on low bushes or between old vegetable matter on the ground, about 500 feet above the sea, on Penang hill.

\* *Microcystis*, Beck. Comp. Semper in Reis. Arch. Philipp., pt. II, vol. iii, 1870, p. 43, and Stoliczka in J. A. S. B., vol. xl, pt. II, p. 251.

† Semper, Reisen Archip. der Philippinen, vol. iii, p. 20.





The animal is slender and very long; when fresh the extended foot is three times the longer diameter of the shell, which is then entirely covered by the mantle; but in captivity the shell lobes shrink very rapidly, being reduced to narrow linguiform appendages. Middle of back and of the hind foot whitish or very pale brownish, with a slight pinkish tinge; a broad blackish band runs from each pedicle along the sides of the whole back, and also on the sides of the posterior part of the foot, as far as the terminal gland, which is superseded by a very distinct pointed horn; the dark colour extends down to the pedal row, while a large black spot about the middle of the foot on each side reaches down to the sole; pedicles long, grey; tentacles short and almost white; mantle blackish with small whitish dots. All the four mantle lobes are well developed, the left shell and neck lobes are proportionately somewhat larger than the corresponding right ones, and each of the former has a deep but narrow incision in its lower portion.

The jaw is about one mill. broad, quadrant shaped, smooth, without any projection in the centre of the concave edge, like in most other species of the genus.

The radula is moderately broad and nearly 2.5 m.m. long; there are 95 transverse rows and about 121 teeth in each row, all remarkably small and from the tenth tooth they somewhat rapidly decrease in size towards the edges. The centre tooth has two distinct denticles on either side and a third much smaller one nearer to the base; the principal cusp is pointed. On the subsequent teeth the inner denticles disappear first, and gradually altogether, then the lower outer, while the upper outer remains, until at last it equals the principal cusp, so that the outermost teeth become almost regularly, though shortly, bicuspid.

The general anatomy does not offer any peculiarity requiring special notice. The nervous and digestive apparatus agrees with that of other ZONITIDÆ, except perhaps that the liver is enormously largely developed. The female portion of the genital system has a long sub-pedunculate receptaculum seminis, branching off at its origin. The vas deferens is very short, passing into a rather widened tube, again somewhat contracted near the base of the penis, which is attached by a special strong muscle. The end of the penis widens very rapidly for a short distance before it joins the hermaphrodite opening. I have not observed, in two specimens examined, any cœcal or calciferous appendages.



Genus. *TROCHOMORPHA*, *Albers.*

HELICEN, Edit. E. v. Martens, p. 60, and Preussische Exped nach Ost Asien vol. ii, Landschnecken, 1867, p. 245; *Nigritella* and *Videna*, ibidem. *Sivella*, Blauf.

The type of this genus is *Helix trochiformis*, Fér., which is characterised by a moderately solid, sub-discoid or depressedly conical shell, the whorls being flattened above, the last carinate at the periphery, the aperture rhombiform or narrowly semilunar with simple sharp edges, but the columellar lips occasionally internally somewhat thickened and slightly reflexed.

I do not know whether the animal of this typical species had been examined, but I have observed those of about a dozen different species, which evidently belong to the same type, and I find that all of them possess a very fine glandular slit at the upper end of the foot, the pedal row being in all also distinct; they have, therefore, to be referred to the *ZONITIDÆ*, as already noticed in my paper on the Moulmain shells in Jour. A. S. B., vol. xl, pt. II, 1871, p. 225.

Judging from a somewhat more intimate examination of the animals of a few species, the following characters have to be added to those derived from the peculiar shape of the shell.

Animal moderately slender, with the posterior part of the foot shorter than the anterior, the former terminating above with a small glandular slit; pedal row distinct; mantle with elongated narrow neck lobes, but with the shell lobes entirely wanting, left neck lobe sometimes divided or insinuated in the middle; jaw smooth; genital organs without amatorial gland, or any other appendages; seminal receptacle and seminal duct very long.

The *Trochomorphæ* live on the ground generally in decaying vegetable matter, under or on old wood. Three species have been found on Penang.

Albers, while noticing several typical species, such as *T. planorbis*, Less., under his genus *Discus*, referred to *Trochomorpha* a most varied mixture of shells: for instance; *anceps*, Gould, *serrula*, Bens. etc. which belong to *Rotula*; *Barrackpoorensis*, Pfr., is a *Kaliella*; *cacuminifera* and *infula*, Bens. are *Sitalæ* (= *Conulema*, olim); *H. capitium*, Bens., does not belong to the present family, but to the next, the true *Helicidæ*, etc.

E. v. Martens (l. cit. pp. 246 and 247) adopted two groups in the genus *Trochomorpha*; the one, for which he proposes the name *Nigritella*, includes the obtusely conoid and more solid shells, sometimes with a somewhat obtuse periphery; these are true *Trochomorphæ*, of the type of *H. trochiformis*, or of *Troch. Ternatana*, Guillou; the name *Nigritella* is, therefore, entirely superfluous. The second group is classed by Martens as *Videna*, Adams; it includes the more planorboid and sharply keeled species of the type of *H. planorbis*, Less. For this same group, (type *H. castra*, Benson,) W. T. Blanford proposed the subgeneric name *Sivella*.





Judging from the similarity of the shells of these two groups and from what we know of the animal of *T. Ternatana*, observed by Martens, I very much doubt that any necessity exists for subdividing the genus *Trochomorpha*.

*TROCHOMORPHA CASTRA*, (*Benson*). Pl. i, figs. 14-16 and pl. ii, figs. 7-9.

*Helix castra*, Benson, Ann. and Mag. Nat. Hist., 1852, vol. x, p. 349.—Reeve, Conch. Icon., *Helix*, No. 1160.

The shell is subject to a very considerable amount of variation as regards the elevation of the spire. Young specimens are sometimes almost planorbular, and in some adults the total height of the shell is scarcely more than one-third of the larger diameter, while in others it somewhat exceeds one half of the same dimension. The width of the umbilicus varies from 0.2 to 0.3 of the diameter of the shell. The base is always distinctly spirally striated, but on the upper side the oblique transverse striae of growth prevail. The usual colour is pale horny, sometimes brown with a pale band below the suture.

The species is very rare on Penang hill, but it is common in Pegu, Arakan, Assam, Sikkim, and within the last few years it became abundant in the botanic garden near Calcutta, having been most likely introduced from Darjeeling. One of the largest Sikkim specimens in my collection measures: larger diam. 13, smaller diam. 12, height of shell 7, same of apert. 3, width of same 5.4 m.m.

The animal changes from dark leaden to blackish grey, being always paler at the sides of the foot, generally tinged with brownish below the pedal row; tentacles and pedicles mostly somewhat darker than the body; neck distinctly warty; sole dark grey, entire, without any distinct furrows; tail gland represented by a fine slit about one mill. long. The total length of the foot generally equals one and a half diameters of the shell, the caudal portion being always shorter than the anterior one. The mantle is blackish and in its extent above the large pulmonary cavity variegated with pale spots.

The jaw is smooth, very thin, almost semicircular, with broad oblique ends and a small, in younger specimens sometimes almost obsolete, projection in the centre of the concave edge; its width is about one half millimetre.

The radula is narrow, about two mill. long, or slightly longer, composed of about 85 transverse straight rows, there being about 101 teeth in each of them. All have very sharp, long and pointed cusps, the central with a small denticle on either side near the tip; on the outer ones, as they turn laterally and gradually decrease in size, the inner denticle disappears, while the outer increases, until on the last 15 or 20 teeth, preceding the 3 or 4 terminal ones, it equals the principal cusp. The last few teeth are short, broad, and their outer cusp becomes almost entirely obsolete, the teeth presenting merely an oblique sharp edge.

The female portion of the genital organs has a globular swelling near its origin at the hermaphrodite opening, and the receptaculum seminis



branches off above this gland, it is fully one inch long, somewhat thickened in the middle. The penis is attached by a short muscle, about 4 m.m. long and moderately thickened.

*TROCHOMORPHA CANTORIANA*, (*Benson*). Pl. i, fig. 13.

*Helix Cantoriana*, Benson, Ann. and Mag. Nat. Hist., 1861, vii, p. 85.

Five specimens which I found on Penang hill (at about 2000 feet elevation) exactly correspond with Benson's description, which was taken from a solitary specimen obtained by Dr. Cantor on the small island Sung-Sung near Penang. The illustration given on plate i will dispense with a repetition of the description quoted above. The apex is smooth, slightly swollen, and there are scarcely more than five whorls in specimens of 10 m.m.

The animal is blackish grey with a very narrow, pale dorsal stripe, quite similar to that of *T. castra*, but by some accident no specimen was preserved in spirit, so I cannot give any further details of its structure; it is, however, certainly a *Trochomorpha*. The specimens were found under a log of old wood.

*TROCHOMORPHA TIMORENSIS*, Martens. Pl. i, fig. 17, and pl. ii, figs. 10-12.

E. v. Martens, in Preuss. Ost-Asiat. Exped., 1867, II, p. 248.

Penang specimens, of which I obtained sixteen, entirely agree in form and structure with the shell described by E. von Martens, with the single exception that the last whorl is not descending near the aperture, but there is an inclination to it, as its terminal portion in adult specimens is slightly more bent downwards than the preceding part (comp. figs. 17*a* and 17*b*). This character is, however, certainly a variable one; it does also occasionally occur in adult specimens of *T. castra* and *T. planorbis*. The differences noticed by E. v. Martens regarding the greater number of whorls, and the larger umbilicus, with less rapidly descending sides, in *Timorensis*, when compared with *planorbis*, are well marked in Penang examples.

The species is found sparingly on or under old wood all over Penang hill; *T. planorbis* was not met with there, but it is a very abundant shell at the Nicobars.

The animal is uniform blackish, mantle more intense black; pedal row distinct and the edge of the foot below it nearly quite smooth; neck and sides covered with small warts; tail gland represented by a very fine slit, scarcely more than half a millimetre long.

The jaw and radula are quite similar to those of *T. castra*. The former is about three quarters mill. broad, with somewhat curved out ends and a broadly rounded central projection in the concave edge. The teeth are very slender, and the lateral denticles are very close to the tip on the centre tooth. The outer denticle descends a little lower down on the laterals, but it



always appears to remain smaller than on the corresponding teeth of *T. castra*; the outermost laterals were not observed, they must be very thin.

The genital organs are distinguished by a very great length of the seminal receptacle and of the seminal duct; the former is one and a half to nearly two inches long; it is somewhat widened near its origin but further on almost throughout equally thin.

*Fam. Vitrinidæ.*

*VITRINA NUCLEATA*, n. sp. Pl. i, fig. 12 and pl. ii, figs. 4-6.

Vit. testa depresso ovata, tumidula, tenui, pallide cornea, translucente; anfractibus 3.75, nucleo 1.5 anf. composito, late conico, inflato, lævigato, duobus anf. sequentibus ad suturam adpressis, subcanaliculatis, rapide accrescentibus, nitidis, transversim striis incrementi minutissimis notatis; apertura ampla, per-obliqua, labio undique tenuissimo, ad basin valde recedente, margine supero convexiusculo. Diam. maj. 9, diam. minor 7, alt. test. 5.3, alt. aperturæ 4.8, ejusdem latitudo 6.1 m.m.

A characteristically distinct species, by having the nucleus composed of one and a half whorls, conically tumid, while the next whorl is at its beginning only very narrowly exposed, or almost entirely covered. The outer lip is very thin, almost membranaceous, and simple throughout.

*V. nucleata* is one of the rarest Penang shells. I found three live specimens on the Penang hill in dense forest on old wood, about 1000 feet above the sea, and two more old shells at the base of the hill.

The animal is entirely black, only slightly paler at the front sides of the foot; it is very long and slender, its total length being about four times that of the longer diameter of the shell; the anterior part is the much shorter one, the posterior tapers into a point, and the whole is warty and grooved. The mantle, however, is nearly smooth. In quite fresh specimens the two shell lobes entirely cover the shell, but generally the left lobe covers a little more than one fourth of the last whorl extending from the margin of the mouth, while the right lobe also covers one-fourth of it beginning at the angle of the mouth, but at the same time also envelopes the whole spire. The neck lobes are also well developed, rounded, with simple edges, the left is much larger and longer than the right one. The sole of foot is pale brown, divided by two grooves in nearly three equal parts, of which the median is smooth and the lateral transversely sulcated. Pedal row well marked by a thin groove above and along the entire base of foot.

The jaw is semilunar, radiately finely striated, with a blunt projection in the centre of the concave edge; the outer or convex portion is smooth; it measures about 0.75 m.m. in breadth.

The radula is about two mill. long and half a mill. broad; there are 110 transverse, almost quite straight rows, but only 61 teeth in each of them.



All have very sharply pointed cusps, the central has two small lateral denticles on either side; on the outer ones these denticles almost entirely disappear.

The genital organs are distinguished by a great length of the uterus, at the end of which lies a large albuminous (*ag.*) and hermaphrodite gland (*hg.*). The seminal receptacle (*rs.*) is a long, pedunculated, spacious bag which includes a peculiarly twisted, horny organ, provided on the concave side with short crispate appendage. It is the same problematic organ which I described in *Sesara infrendens*, Gld., and *Macrochlamys* [*Durgella*] *honesta*, Gld., (Comp. J. A. S. B. XL., Pt. II, p. 242 and 250, pl. xvi, fig. 5 and 6, and pl. xvii, fig. 13). Whether this structure represents the amatorial organ and whether that which we call a seminal receptacle really possesses the function which we attribute to it, appears to be as yet an open question. In the present species I found the terminal end of the so-called seminal receptacle filled with a milky substance, which under a high power exhibited a quite irregular flaky appearance.

In other respects the present species does not offer any anatomical peculiarities. The oesophagus is comparatively thin, long, cylindrical. The kidney, situated near the end of the rectum, is very large, of a broadly triangular shape; the liver enormously developed.

Some years passed the *Vitrinæ* had been classed as a subfamily of the *Helicidæ*; more recently they had been by various authors treated with the *Zonitidæ*, in the Oxygnathe group of HELICACEA. I think the older classification is preferable, as entered by Binney and Bland in their Land and Fresh-water shells of N. America. But I would prefer to give them, together with *Helicolimax*, *Hyalina* and their allies, a position intermediate between the two families. They combine indeed several of the characters of both. Although they do not possess a terminal mucous gland on the end of the foot (as all *Zonitidæ* do), they have a more or less distinct pedal row, and the sole appears to be often divided by longitudinal grooves. The jaw is entirely or partially finely transversely striated, not quite smooth, as usually in *Zonitidæ*, and not ribbed, as in true *Helicidæ*. However, the teeth, particularly the outermost laterals, have more the pointed character of the former than of the next family.

#### *Fam. Helicidæ.*

TRACHIA\* PENANGENSIS, n. sp. Pl. iii, figs. 1 and 18-20.

T. suborbiculata, alta, spira breviter elevata, obtusa, modice sed profunde umbilicata, tenui, fere cornea, cuticula luteo-fusca dense et breviter pilosa induta, unicolore; anfractibus 4·5, convexis, sutura profunde subcanaliculata junctis, ultimo ad peripheriam uniforme convexo, ad aperturam paulo descen-

\* Compare, Stoliczka in Journ. A. S. B., vol. xl, Pt. II, 1871, p. 223.





dente, ad marginem umbilici obtuse angulato; apertura semilunari, labio tenui, labro expanso atque reflexo, ad insertionem umbilicalem paululum dilatato, ad basin indistincte subangulato, pallide violaceo tineto. Diam. maj. 16, diam. min. 14.5, lat. aperturæ cum perist. 8.8, ejusd. alt. 8.2 m. m.

As regards the thin, almost horny, fulvous, thickly and finely setose structure of the shell, this species is probably most closely allied to *T. erinacea*, Pfr., but it differs from it, as well as from two other very similar forms, *T. quieta*, Reeve, and *T. eustoma*, Pfr., by its conspicuously more elevated spire. Other species of similar type, like *T. breviseta*, Pfr., from Siam, *T. Helferi*, Bens., from the Andamans, and four or five others described by Pfeiffer and E. v. Martens have nearly all a more depressed form and mostly sub-angular last whorl, although their spire is somewhat elevated.

The animal is dark chocolate brown, with a very narrow pale dorsal and caudal stripe, the body is laterally somewhat more blackish in front, and tinged brownish behind; the posterior end of the foot is the shorter one, as in *Trochomorpha*, although not to the same extent.

The jaw is quadrant shaped, with about six strong ribs,\* and one or two less distinct ones on either side; it is 1.3 m.m. broad.

The radula is about 2.5 m.m. long., and 1. m.m. broad; there are 95 transverse rows, and 91 teeth in each of them, decreasing in size the more they approach the edges. The centre tooth is slightly smaller than the first laterals. All have a large basal plate, which is on the centre tooth slightly emarginate in the middle of the upper edge; this emargination increases in depth on the laterals, the inner branch remaining smaller, until on the last ones the upper edge becomes represented by two obtuse branches. The hook is on all teeth comparatively small, broad, with a moderately sharp point. On about the tenth tooth a small denticle appears to shew on the outer edge near the tip, becoming more distinct on the following teeth. After the eighteenth lateral, the teeth become somewhat more rapidly shorter, but increase in width until the last are wider than long, or high, and on these the basal plate has almost entirely become obsolete.

The genital organs are more than an inch long. The female portion has a long seminal receptacle, strongly thickened and muscular for some distance from its origin, then passing into a long thin tube and terminating with a moderately enlarged bubble, attached by very thin muscular fibres to the albuminous gland which is situated at the end of the uterus. The vas deferens takes its origin near the upper end of the uterus; it is attached by numerous thin threads at the hermaphrodite opening, and after a short distance enlarges into a muscular tube. At the beginning of this enlargement is a short pointed flagellum (*f*), and at the

\* Evidently very much like that of *Campylaea*.



other end, where the penis begins, is a retractor muscle. The penis itself has near its base a cœcal appendage; its terminal portion, before it joins the hermaphrodite opening, is very thin.

A comparison of the genital organs with those of *Trachia delibrata*, represented in J. A. S. B., vol. XL, Pt. II, 1871, pl. xvi, fig. 1, will shew, that the only essential difference consists in the presence of the small cœcal appendage on the penis in *T. Penangensis*. The jaw has fewer and less strong ribs, than that of the former species, but the teeth themselves are extremely similar.

Taking all these anatomical characters together with those of the shell, as noticed in my paper cited above, I think we can consider *Trachia* as a fairly established genus of the HELICIDÆ.

HELIX [FRUTICICOLA] SIMILARIS, Fér. Pl. ii, figs. 1-3.

Comp. E. v. Martens in Preuss. Exped. nach Ost-Asien, vol. II, pp. 43 and 270, etc. Stoliczka in J. A. S. B. vol. XL, Pt. II, 1871, p. 224.

On Penang this species is mostly found in the coco-palm plantations up to a height of about 200 feet, never in the interior of large forests and at great elevations. The shells are of the usual small size (larger diam. between 12 and 13 m.m.), with or without a brown peripheral band. The striae of growth are generally fine, but in some specimens they accumulate to strong ribs which give the shell a very peculiar costate appearance.

I also obtained the species from Malacca, near Singapore, Hongkong, Chusan, Maccao, Canton, &c., northwards it extends through Tenasserim into Burma, where it is associated with a great number of closely allied species, some of which may prove to be mere varieties of it. I may mention *H. bolus*, *H. scalpturrita*, *H. Zoroaster*, &c.

In Bengal itself the species is not known, but in Central India it is represented by *H. propinqua*, and on the Andamans by *H. hemiopta*. Judging from the great number of closely allied species in the Indo-Malayan region, there is certainly the greatest probability that the original habitat of *H. similaris* falls within the Indo-Malayan Archipelago, and that it has been introduced into Mauritius, China and South America.

The animal is rather slender, all over strongly warty, brownish fleshy white, or pale brown, the pedal row is very slightly indicated by a fine groove; the pedicles and tentacles are greyish white, mantle dull milky white with a slight vermilion tinge. When the animal is quite fresh the total length of the foot is equal to from two and a half to three longer diameters of the shell.

The jaw is semilunar, about 1 m.m. broad, with three strong central ribs, followed by a somewhat broader one on either side, while the next is only indicated by a faint dark line.



The radula is when compared with the size of the animal large, about 2·3 m.m. long, and somewhat more than one m.m. broad; it is composed of about 90 transverse rows, with 67 teeth in each of them. The central is much smaller than the adjoining laterals, with a long arched cusp. The laterals somewhat rapidly decrease in size after the 14th; on the outermost the basal plate gradually disappears, while the breadth of the teeth exceeds their length.

The genital organs are more complicated than in *Trachia*. The female portion has at its origin a rather short, thick muscular cœcal appendage, which most probably represents the amatorial gland; it is widened near its origin and at its rounded end. The seminal receptacle is a round bag, attached to a long thin peduncle of about the same length as the uterus. The seminal duct is moderately long, but the penis comparatively thick and attached by a strong muscle.

### *Fam. Bulimidæ.*

#### BULIMUS.—Subg. *Amphidromus*.

The only two species which I found among the coco-palms were *Bulimus atricallosus*, Gould, and *B. interruptus*, var. *citrinus*; the uniform coloured greenish yellow variety. The former is the more common species.

Besides these two, the ubiquitous *Stenogyra gracilis* is by no means rare at the roots of palm trees.

### *Fam. Clausiliidæ.*

#### CLAUSILIA (PHLEDUSA) PENANGENSIS, n. sp. Pl. ii, figs. 4-6 and 15-17.

*C. testa fusiformi, plus minusve attenuata, medio ad anfractum penultimum latissima, non rimata, solidula, castanea, apice submammillata, albescente, anfractibus 9·5 ad 10·5, convexis, sutura simplici junctis, transversim confertissime striolatis, penultimo sensim attenuato; apertura ovata, intus castanea, peristomate modice expanso, undique libero, albescente, plica supera crassa, ad marginem aperturæ continua, columellari immersa, tenui, valde oblique intrante; plicis palatalibus six, prima longissimima, unam mill. a margine suturali distante, ceteris multo brevioribus, subæqualibus, modice curvatis atque fere æquidistantibus.*

Var. *brevis*, exquisite fusiformis, vide fig. 6 et 6a; long. 24, lat. 6·2, apert. cum perist. 6 longa, 4·5 m.m. lata.

Var. *elongate fusiformis*, vide fig. 5; long. 26·3, lat. 6·2, apert. 6·9 longa, 4·7 m.m. lata; in hoc specimine apertura exceptionaliter longa est, in speciminibus alteris, forma similibus, longitudo aperturæ 6·2 ad 6·4 observanda.



Var. *exilis*, attenuate fusiformis, vide fig. 4 et 4a; long. 27, lat. 6, long. apert. 6.3, lat. 4.6 m.m.

*Hab.*—Penang hill, frequens.

This is an extremely variable species as regards the shorter or longer fusiform shape of the shell, and also as regards the size of the aperture, but both these variations are very commonly observed in other species of the genus, and particularly in the allied Malayan species *Cl. Gouldiana*, Pfr., *insignis*, Gould,\* and *Sumatrana*, Martens.† All three have a similarly variable shape, and finely striated, moderately convex, whorls, but in the two former the aperture is much shorter of a squarish shape, and in the last it is conspicuously longer; E. v. Martens gives its length at 8 m. m. in a specimen, the total length of which is from 23.5 to 31.5 m. m. In this last species, which also comes nearest to the Penang shell, the whorls appear to be slightly less convex and there are only five palatal plates present.

The animal is uniform grey covered with small pale brown warts, darker on the back, paler on the pedicles, which have very small, black eyes; tentacles very short.

The general anatomical structure agrees with that which I published of *Cl. Philippiana*, (comp. J. A. S. B., vol. xl, pt. II, 1871, p. 174, pl. vi, fig. 8).

The genital organs are distinguished by a very great length of both the uterus and the penis, both of which are much twisted. The only appendage is that of the seminal receptacle, which is comparatively small and narrow, situated at the end of a long peduncle.

The jaw is very short, about 0.5 m. m. broad, apparently smooth; only very faint radiating and concentric lines are to be observed in certain lights.

The radula is about 2 m.m. long and 0.5 m.m. broad; it consists of about 125 rows, with 61 teeth in each row. All are provided with a strongly curved cusp; after about the fifteenth tooth, they rather rapidly decrease in length. Towards the end of each row they become multi-serrated, while the basal plate almost entirely disappears. The last teeth are very short, but broad, almost linear and entire.

*CLAUSILIA* [*PHÆDUSA*] *FILICOSTATA*, n. sp. Pl. III, figs. 7-8.

Cl. testa fusiforme turrita, apice sensim attenuata, subrimata, tenui, pallide cornea; anfractibus 10 ad 11, lente convexiusculis, sutura simplici junctis, ad suturam filiforme marginatis atque infra marginem paulum contractis, transversim oblique dense costellatis, antepenultimo vix latiore quam penultimo, ultimo versus aperturam paululum contracto; apertura ovate subtrigona, postice, (aut supra), subangulata, peristomate expanso, undique libero, plica

\* J. A. S. B., xli, pt. II, pp. 203, 204, 208, pl. ix.

† Ost-Asiat. Exped., 1867, p. 379, pl. 22, fig. 17.



supera tenui, haud usque ad marginem peristomatis interni extensa, intus in fauce rapide evanescente, columellari approximata, fortiori, valde obliqua; plicis palatalibus circiter decem, supera longissima, a margine distante, duabus vel tribus sequentibus multo brevioribus, cæteris brevissimis, omnibus inter se irregulariter dispositis. Long. 21·2, lat. 4·4; long. apert. cum perist. paulo imperfecto 4·8, lat. 3·6 m.m.; specim. secundi apert. cum perist. perfecto 5·3 longa et 4 m.m. lata.

*Hab.*—Penang hill, cum precedente, sed rarissima.

This species is very closely allied to *Cl. Javana*, Pfr., but the latter has the whorls, particularly the middle ones, somewhat higher, the transverse costulation is a little finer, and more crowded, the palatal plaits are fewer, two according to Küster, three to four according to E. v. Martens; it also appears to have the two labial plaits stronger. I do not know any other species with which the Penang shell can be compared. It appears to be extremely rare; out of three specimens found only one has the aperture with the margins perfectly well developed.

### *Fam. Philomycidæ.*

Binney and Bland, Land and fresh-water shells N. America, pt. I, 1869, p. 294.

### Genus. PHILOMYCUS.

1820. Rafinesque. Comp. 'Complete writings,' by Binney and Tryon, 1864, p. 64.

1821. Férussac, Tabl. syst. des Limaces, p. 14.

1823. *Meghimatium*, Hasselt, Algern. Konst. &c., p. 232; *idem*, Fér., 1824.

1842 (August). *Incillaria*, Benson, Ann. and Mag. Nat. Hist. vol. ix, p. 486.

1842 (Septb.). *Tebenophorus*, Binney, Boston Journal, iv, p. 171, and 1844, Wyman, *ibidem* p. 410.

1866. *Philomycus*, (anatomy of) Keferstein, Zeitsch. Wissensch. Zool., vol. xvi, p. 183.

1866. *Incillaria* and *Meghimatium* (anatomy of), Keferstein, Malacoz. Blätter, vol. xiii, p. 64.

1869. *Tebenophorus*, Binney and Bland, Land and Fresh water shells N. Am. pt. I, Palm. Geoph., p. 295.

*Philomycus* apud H. and A. Adams, Chenu, E. v. Martens &c.

It must be admitted that the original characteristic of the genus by Rafinesque is a very unsatisfactory one, but that is the case with many other old definitions. When Rafinesque wrote that *Philomycus* has no visible mantle, everybody\* could, I think, fancy that the mantle must extend over

\* Binney writes in 1841 (Boston Journ. IV, p. 174) of his *Philomycus dorsalis* corpore ..... clypeo nullo,' and on p. 171 of *Tebenophorus carolinensis* 'clypeo lato et elongato, dorsum integrum vestiente,' and still both species have the mantle covering the entire upper surface of the body, and both are *Philomycus* (or *Pallifera* of Morse).





the whole body, if the animal can at all be closely compared with *Limax*, or else it could not be a Mollusc at all. This was indeed well understood by Férussac, who in the next year referred to *Philomycus*, besides the four insufficiently described species of Rafinesque, *Limax carolinensis* of Bosc, well known from description and figure, (copied in Hist. nat. des Moll., pl., 6, fig. 3). And as Rafinesque's species had not been rediscovered and his descriptions not made more complete, *Ph. carolinensis* remained to be considered as the type of the genus, though I do not think that there can be much doubt on the point, that Férussac had correctly interpreted Rafinesque's meaning. In any case there was no sufficient ground for introducing the name *Tebenophorus* for the same species.

Keferstein (loc. cit.) has shewn by the anatomical examination of the three typical species, *Philomycus carolinensis*, (seu *Tebenophorus*), *Meghimatium striatum* and *Incillaria bilineata*, that all three genera have to be united into one. The general anatomy and dentition &c., agree in all, the only traceable distinction of *Phil. carolinensis* consists in the presence of a small amatorial organ, situated at the entrance of the seminal receptacle. The presence or absence of this organ, or even of that of a special amatorial gland (see ante, p. 13), is rightly considered by Keferstein as insufficient for a generic separation of the American from the Indian species. I had repeatedly opportunity of satisfying myself of this by the observation, that the development of that organ does not only appear to depend upon the age of the animal, but often even upon the season or peculiarities of the conditions, under which the animal lives. As far as our materials enable us to judge, we can, I think, look upon *Philomycus* as a well established genus. For the present it has to be regarded as the sole representative of the family. The finely radiately striated (in *Ph. dorsalis* coarsely ribbed) jaw in part resembles that of the VITRINIDÆ, but the dentition has decidedly more the character of true HELICIDÆ.

I have to notice one new species found on Penang.

*PHILOMYCUS PICTUS*, n. sp. Pl. III, figs. 9-14.

*Ph. corpore tenuiter cylindraceo, plus minusve (35 ad 46 m.m.) extenso, antice rotundate subtruncato, postice acuminato, livido, copiose mucoso, suprâ pallio lævigato, lateraliter atque in parte postica nonnunquam subgranuloso tecto, fasciis tribus longitudinalibus atratis, reticulationibus ejusdem coloris junctis, picto, faciâ centrali latissimâ, duabus alteris tenuioribus ad latus dorsi sitis et a margine inferiore distantibus; orificio pulmonari antice ad latus dextrum in incisione pallii sito, circiter 5 ad 7 m.m. a terminatione antica distante; pedunculis oculiferis circ. 5 m.m. longis, tentaculis brevissimis, ambobus pallidissimis; pede infrâ transversim plicatello, livido.*



During life the length and comparative thickness of the animal changes very rapidly, as may be noticed from a comparison of the two sketches taken from life and one from a specimen preserved in spirit. The animal is covered by a thick layer of mucous secretion, it is very active, and readily burrows in light decomposing vegetable substance. The three black longitudinal bands are connected by a similarly coloured net work which continues, interspersed with, or dissolved into, little dots, to the lower edge of the mantle. The three distinctly marked bands distinguish the present species from the Javaen *Ph. reticulatus*, according to Férussac's figures 2\* and 3 on pl. 8 E., p. 96<sup>3</sup>, Moll. terr. et fluv. vol. ii. The peduncles are about 5 m.m. long, provided with distinctly developed globules on which the small black eyes are situated; the tentacles are very short, and when the animal moves about scarcely noticeable; both are very pale coloured.

The anatomy of the species almost perfectly agrees with that given by Keferstein of *Ph. striatus* and *bilineatus*. The internal pulmonary cavity extends to about one anterior fourth of the length of the body, and in the fresh animal is always well marked by the mantle above it being somewhat inflated. On this inflated portion, the mantle is smooth, on the other parts generally slightly rugose.

The genital organs (comp. fig. 13) have no special amatorial gland. The seminal receptacle is a globular pedunculated bag, situated a short distance from the hermaphrodite opening. In two specimens which I examined, I noticed the development of a strongly fibrous bundle of muscles at the entrance of the receptacle, where it branches off from the oviduct, but there was no special amatorial organ present.

The jaw is semilunar, strongly curved, thin, radiately striated; when laid flat about one mill. broad.

The radula is 2.8 m.m. long, only about 0.5 broad; there are about 170 rows, and 87 teeth in each row: the central tooth with a symmetrical simple curved cusp, the laterals with a more oblique but simple cusp, both it and the basal plate gradually decrease in height until the last teeth become almost linear and form a confluent row.

None of the other organs require any special notice.

I found three specimens of this species among old decaying vegetable matter on the ground at the northern base of Penang hill, about one hundred feet above the sea.

\* E. v. Martens (Preuss. Exp. nach Ost-Asien, Landschnecken, p. 182) refers to this figure as a synonym of Hasselt's *Parmacella reticulata*, which he quotes as *Parmarion reticulatus*. I do not know Hasselt's original figure, but surely the one given by Férussac does not represent a *Parmacella* or a *Parmarion*.



*Fam. Pupidae.*

This family is represented in India and Burma by *Hypselostoma*, *Boysia* and various subgenera of *Pupa*, all of small size. Among the *Pupæ* found in Burma and the adjacent countries, inhabited by a large number of Malayan forms, the majority are referable to Albers' subgenus *Scopelophila*, the type of which is *Pupa Kokeilii*, Rossm. The shells are small, subconic or subcylindrical, composed of 4 to 8 whorls, with a moderately thin, semicorneous or corneous texture, covered by a brown cuticle; the last whorl is rimate at the base, always somewhat rapidly turned to the front, generally slightly ascending at the aperture, which is internally instructed with teeth on the whole peristome; commonly there is a bifid tooth on the inner lip, it is larger than any of the others. Some of the species appear to differ from *Pupilla* merely by the peculiar turn of the last whorl towards the front, thus shewing a strong affinity to *Hypselostoma*. The Indian species of *Scopelophila*, as far as I observed them, have the pedicles well developed and the tentacles short.

A second small group of *Pupa*, which is found in India, Burma and the country southward, is characterised by a subconic or ovate shape, composed of three to five whorls, of a thin corneous texture, covered with a transversely striated cuticle; the last whorl is not ascending, the aperture generally edentulous; the columellar lip is externally near its attachment somewhat expanded, mostly covering the umbilical region, while internally at the base it is twisted and occasionally provided with a small tooth. I propose for this subgeneric group the name

*Pupisoma*,

and regard as the type of it the Moulmein *P. lignicola*, described in J. A. S. B., vol. xl, pt. ii, p. 171, pl. vii, fig. 3. The animals have very short pedicles and barely a trace of tentacles. They generally live on wood.

PUPA [SCOPELOPHILA] PALMIRA, n. sp. Pl. II. fig. 3.

P. testa ovate cylindracea, rimata, sordide albida, cornea, apice obtusiuscula; anfractibus quinque, convexis, gradatim accrescentibus, sutura simplici junctis, sublævigatis, fere politis, lineis nonnullis incrementi transversis obliquis, exilissimis notata; apertura fere verticali, subquadrangulari, intus quinque-dentata, albida; labro undique expansiusculo atque paulum incrassato, extus infra suturam sinuoso, intus profunde bidentato, (dente supero minori), ad basin dente unico minuto et ad medium collumellæ altero fortiori instructo; labio tenui, adnato, extra medium prope angulum posteriorem aperturæ dente lamelliforme bipartito munito.

Long. testæ 2·15, latit. 1; long. apert. 0·8, lat. 0·6 m.m.



*Hab.*—Penang et in Provincia Wellesley dicta, sub corticem *Cocos nuciferæ*; testa rarissima.

This is of exactly the same type as the Arrakanese *P. filosa*, described at p. 333 of the Journal for last year, but it is larger, more cylindrical and has one tooth more in the aperture. From *P. Avanica* it differs by less closely wound whorls and by the interal dentition of the aperture.

It appears to be a very rare species. I found one specimen under the bark of a cocoa-nut tree on Penang, and two others on the opposite coast in the Wellesley Province.

PUPA [PUPISOMA] ORCELLA, n. sp. Pl. II, fig. 2.

*P.* testa subglobose conoidea, apice obtusa, angustissime perforata, tenui, cornea; anfractibus 3·5, valde convexis, sutura simplici junctis, transverse filose striolatis; apertura subrotundata, paululum obliqua, edentula; margine externo tenuissimo vix repandiusculo, columellari albescente, vix torto, supra reflexo, umbilicum fere omnino obtegente.

Alt. testæ 1·7, diam. 1·25, alt. aperturæ 0·6 m.m.

*Hab.*—Penang, sub corticem *Cocos nuciferæ*, haud frequens.

The animal is grey with dusky pedicles, but no perceptible trace of tentacles. The species differs from *P. lignicola* (l. cit.) by a shorter and broader form, more convex whorls, and by a very slightly expanded and thin outer lip. In fresh specimens some of the transverse striæ of the cuticle are rather stronger than others, but they very soon wear off.

#### *Fam. Streptaxidæ.*

This family is represented by the single species *Euneca bicolor*, occurring with *Stenogyra gracilis*, though not very commonly. (Comp. J. A. S. B., 1871, vol. xl, pt. ii, p. 169).

#### *Fam. Veronicellidæ and Vaginulidæ.*

I have collected two species, which are by authors usually referred to the genus *Vaginulus*, and with which Blainville's *Veronicella* is considered as identical.

The one species is the same as *Vaginulus Birmanicus*, briefly described by Theobald in Journ. A. S. B., vol. xxxiii, for 1864. It is found about Calcutta, extending throughout Bengal up to the base of the Sikkim hills, through Arrakan, Tenasserim to Penang. A specimen obtained at Singapore does not appear to differ; E. v. Martens' *V. Hasselti*, (Preuss. Exp. Ost-Asien, Landschnecken, 1867, p. 176, pl. 5, figs. 2 and 4) from Sumatra, Borneo, &c., also appears to be the same, and it seems to me very probable that it is the true *Onchidium molle* of Hasselt.



A second species is very closely allied to *Vaginulus Tourannensis*, Eydoux and Souleyet, (*Voyage de la Bonite*, pl. 28, figs. 4 to 7), found by Mr. Gaudichaud at Touranne in Cochin China.

A close examination of various eastern species of what authors usually call *Vaginulus* or *Veronicella* appears to me to indicate, that a great confusion has been brought about into the definition of these terms. First of all, we have to return to the typical species of those two generic terms, leaving all subsequent researches regarding other species out of the question.

Blainville's description of his *Veronicella lævis* in 1817 was incorrect as regards the existence of a rudiment of a shell. The mistake was, at least partially, corrected by Blainville in *Dict. d. Sc. Nat.* vol. 57, p. 348,\* and Keferstein, after discussing the opinions about this genus, in *Zeitsch. Wiss. Zool.*, xv, 1864, defined† *Veronicella* as it ought, I think, to be accepted.

The animals have the sexes distinct in one individuum, the male organ under the right peduncle, the female about the middle of the lower right side of the mantle; tentacles bilobed; the anal and respiratory orifices are at the posterior end; the jaw and teeth of the radula resemble those of the *HELICIDÆ*. Thus the general anatomical structure of *Veronicella* agrees in some respects with *Onchidium* (comp. Stoliczka in *J. A. S. B.*, xxxviii, pt. ii, 1869, p. 88, pl. xiv), but in this genus the female genital opening lies with the two others at, or close to, the posterior end; the teeth are peculiarly hook-shaped, and there is no jaw present. As one of the characteristic figures of a *Veronicella* I may mention *Vag. Solea*, d'Orb., (*Voyage dans l'Am. mérid.*, Moll. pl. 21) from Buenos Ayres, or *Vag. Luzonicus*, Eydoux and Souleyet, in *Voyage de la Bonite*, *Zoologie*, vol. II, p. 495, pl. 28, figs. 1—3. Thus our species will have provisionally to stand as

#### VERONICELLA BIRMANICA, (Theob.).

It is found all over the island, up to the top of Penang hill, but is not common, and the specimens are mostly small, about 1 or 1.5 inches. The median dorsal pale stripe generally becomes distinct only in older specimens, and the lower side of the mantle is uniform livid; in very young specimens the pale stripe is absent, and the mantle marked below with dark dots.

The name *Vaginulus* was introduced by Férussac in 1821. Judging from the description of the genus, in part at least, from the arrangement of the species and from the anatomical account given by Blainville, it is, I

\* In this article, Blainville strangely makes a great mistake in considering *Vaginulus*, *Veronicella* and *Onchidium* as identical.

† Comp. also Humbert in *Mem. Soc. Ph. & Sc. Nat. Genève*, vol. xvii, and E. v. Martens *Preuss. Exped.*, p. 175, *Vaginulus*.





think, clear, that Férussac considered the first described species, *V. Taunaysi* as the type of the genus, (Comp. Moll. terr. and fluv., II, pp. 96 p, 96q, and explic. des pl. No. 13, pl. 8 c.). Férussac's characteristic of the genus places the pulmonary opening at a distance of two-fifths of the length of the body from the anterior end, and on the lower right side of the mantle; the female sexual opening is said to be on the same side, about the middle; the position of the anus is not mentioned. Blainville's account of the anatomy is not clear and partly contradictory to Férussac's statement. Some of the figures appear to leave no doubt that the position of the female sexual organ is the same as that indicated by Férussac, in others (fig. I and III,) its situation is too much backward. The anus appears to be situated according to figure I near the sexual opening, but again it is said to terminate with the anus at the posterior upper end of the foot. In the figures II and III (l. cit.), which give an insight into the whole anatomy of the animal, the true termination of the intestines is nowhere given. All this is very unsatisfactory.

Eydoux and Souleyet in their figure of *Vaginulus Tourannensis* also record a small opening at the posterior lower right end of the mantle. I can scarcely believe that this is correct; it is probably only a fault of the artist who thought that an opening must exist there, because it is clearly seen in the other species on the same plate, *Vag. Luzonicus*, which is a *Veronicella*.

My reason for doubting the correctness of Eydoux and Souleyet's figure is the very careful examination of the Penang species, which, as already mentioned, is closely allied to *V. Tourannensis*, if not really identical with it.

The Penang species has the following generic characters, as compared with those of *Veronicella*.

The sexes are distinct, the male opening is under the right peduncle, the female sexual opening lies, together with the anus and the pulmonary orifice, at the lower right side of the mantle, about two-fifths of the length of the body distant from the front. The sexual opening is nearest to the edge of the foot, then comes the anal and then the respiratory one; they are only separated by thin laminæ from each other. There is no jaw present, the manducatory organ consisting of a simple muscular tube, much as in *Strep-taxis* or *Testacella*; the radula is short, composed of simple pointed teeth which are absolutely identical with those of the two last mentioned genera. There is no opening whatsoever at the posterior end of the foot or mantle; the pointed end of the intestinal organs is only attached by a bundle of muscles to the terminal inner surface of the mantle.

On p. 96r of Férussac's Moll. ter. and fluv., Blainville says that the upper



border of the mouth is provided with a dental comb ('peigne dentaire'), and further on, that the buccal cavity is supplied on its inner upper surface with very small sharp points ('très petites pointes acérées'). The latter statement evidently refers to sharp pointed teeth of the radula, but does the former mean to indicate the presence of a jaw, such as exists in *Veronicella*? This is a question of great importance; for if the presence of a jaw can be proved, it would certainly not support the generic identification of our Penang *Vaginulus* with *Vag. Taunaysii*.

There are also a few peculiarities in the other anatomical structure, but on the whole this latter well agrees with that given by Blainville of *Vag. Taunaysii*, with the exception of one or two organs which he evidently misinterpreted.

My doubts against a generic identity of *V. Taunaysii* with *Veronicella*, as formerly defined, appear to me to be supported also by external differences in the shape of the body. In *V. Taunaysii*, as well as in the Penang species and in *V. Tourannensis*, the body is slender and high, so to say nearly cylindrical, the globules on the tentacles are well developed, the appendages of the latter large, the posterior end of the foot is pointed and somewhat projecting beyond the termination of the mantle. In *Veronicella*, on the contrary, the body is more depressed and of a generally more ovate shape, the lower appendage on the tentacles is smaller than the tentacle itself, the end of the foot is more rounded and not, as a rule at least, projecting beyond the termination of the mantle.

E. v. Martens, when speaking of *V. Taunaysii* (Preuss. Exp. nach Ost-Asien, Landschnecken, p. 6), says that the slight lateral expansion of the mantle and the higher body distinguish it from all other species collected in India, and this opinion is, I think, strongly in favour of my presumed distinction between *Veronicella* and *Vaginulus*; for it also exactly applies to the Penang species.

Finally, I must draw the attention to the remarkable external similarity in the form of the body of *Vaginulus porulosus*, Fér. (Moll. ter. et fluv. II, p. 96', pl. 8 E, fig. 5) with that of *Testacella*. The former species is recorded after a drawing communicated to Férussac by van Hasselt, and is no doubt from Java or one of the adjoining islands. I think it represents a true *Vaginulus*, and not a *Veronicella*.

I have placed the above discussion before my malacological friends, because I consider a satisfactory solution of the points in question of considerable importance. The information is not easily obtainable, as the necessary materials are very much scattered about. If my suppositions prove correct, the so called AGNATHA group, and especially the TESTACELLIDÆ or STREPTAXIDÆ, will appear before us in a quite different light, when compared with the other





groups. They will shew that certain characters remain constant under different physical conditions, while others change, and that the change takes place according to certain principles, affecting similar or the same organs. Extended observations of this kind must give us the key to a correct systematic arrangement.

Our special question cannot be solved, unless Blainville's and Férussac's somewhat contradictory accounts of the structure and anatomy of *Vaginulus Taunaysii* had been satisfactorily settled. I hope to have myself an early opportunity of examining one of these animals, and until such a time I will postpone the detailed description of the Penang species, (and of another new one from Sikkim), together with their anatomy, which requires a careful comparison with that of *Vaginulus* and *Onchidium*, of each of which I will have to describe several interesting new forms.

### *Explanation of plates.*

#### Plate I.

- Figs. 1—3. *Rhysota Cymatium*, (Benson), p. 11; a young, an adolescent and an adult shell.  
 „ 4—7. *Rotula bijuga*, n. sp., p. 14; four full grown specimens, variable in the height of the spire.  
 „ 8. *Sitala carinifera*, n. sp., p. 16; 8, natural size; 8a, 8b, 8c, enlarged views.  
 „ 9. *Macrochlamys stephoides*, n. sp., p. 17; three views in natural size.  
 „ 10. *Microcystis palmicola*, n. sp., p. 18; 10, natural size; 10a, 10b, 10c, three views enlarged.  
 „ 11. *Helicarion permolle*, n. sp., p. 18; 11, twice the natural size; 11a, 11b, 11c, 11d, views in natural size.  
 „ 12. *Vitrina nucleata*, n. sp., p. 23; 12, front view in twice the natural size; 12a, 12b, 12c, three views in natural size.  
 „ 13. *Trochomorpha Cantoriana*, (Benson), p. 22; three views in natural size.  
 „ 14—16. „ *castra*, (Benson), p. 21; 14, 14a, 14b, three views in natural size; 15, side view of a specimen from Calcutta; 16 and 16a, top and lower views of a Darjiling specimen.  
 „ 17. *Timorensis*, Mart., p. 22; four views in natural size.

#### Plate II.

- Figs. 1—3. *Fruticicola similis*, Fér., p. 26.  
 „ 4—6. *Vitrina nucleata*, Stol., p. 23; 4a, represents the side view of the problematic amatorial organ enclosed in the *bursa seminalis*.  
 „ 7—9. *Trochomorpha castra*, (Benson), p. 21.  
 „ 10—12. „ *Timorensis*, Mart.; p. 22.  
 „ 13—15. *Rhysota cymatium*, (Bens.); p. 11.  
 „ 16—18. *Rotula bijuga*, n. sp., p. 14.  
 „ 19—20. *Macrochlamys stephoides*, n. sp., p. 17.  
 „ 21—30. *Helicarion permolle*, n. sp., p. 18.

All the figures are enlarged; the measurements in natural size are given in the text referred to.





## Plate III.

- Figs. 1. *Trachia Penangensis*, n. sp., p. 24; three views in natural size.  
 „ 2. *Pupa* [*Pupisoma*] *orcella*, n. sp., p. 33; 2, natural size, 2a, 2b, enlarged.  
 „ 3. *Pupa* [*Scopelophila*] *palmira*, n. sp., p. 32; 3, natural size, and two views enlarged.  
 „ 4—6. *Clausilia* [*Phædusa*] *Penangensis*, n. sp., p. 27; 4, 4a, attenuated var.; 5, elongately fusiform var.; 6, 6a, fusiform variety; all figures in natural size.  
 „ 7—8. *Clausilia* [*Phædusa*] *filicostata*, n. sp., p. 28; views of two different specimens in natural size.  
 „ 9—14. *Philomicus pictus*, n. sp., p. 30; 9, 9a, 9b, three views taken from a specimen in spirit; 10 and 11, two views of the same specimen in different states of expansion, taken from life; all these figures are in natural size, but the other figures, representing the genital organs, the jaw and teeth, are enlarged.  
 „ 15—17. *Clausilia Penangensis*, vide p. 27.  
 „ 18—20. *Trachia Penangensis*, vide p. 24.

## Explanation of the letters used on pl. II and III.

- ho = hermaphrodite opening.  
 ut = uterus.  
 al = albuminous gland.  
 vd = vas deferens.  
 ag = amatorial gland.  
 p = penis.  
 m = retractile muscle.  
 rs = receptaculum seminis.  
 po = pulmonary opening.  
 an = inner, or posterior, angle of mouth.  
 pn = peripheral angle.  
 u = umbilicus.  
 rs = right shell-lobe.  
 rn = „ neck lobe.  
 ls = left shell lobe.  
 ln = left neck lobe.

The small letters below the teeth refer to the distance of each tooth from the respective central tooth in each series.





ON NEPHROPSIS STEWARTI, A NEW GENUS AND SPECIES OF MACRUROUS CRUSTACEANS, DREDGED IN DEEP WATER OFF THE EASTERN COAST OF THE ANDAMAN ISLANDS,—by JAS. WOOD-MASON.

(Read 7th August, 1872, received 16th January, 1873).

[With plate IV.]

In April of last year, I was deputed by the Trustees of the Indian Museum, with the sanction of the Government of India, to proceed to the Andaman Islands for the purpose of making a collection illustrative of the marine fauna of that part of the sea of Bengal in which those islands are situated. I reached Port Blair about the 6th of April, and immediately put myself in communication with the Chief Commissioner, who at once placed at my disposal a well-manned boat and a small steam-launch, with which I dredged for nearly two months with much success from low-water line down to near 50 fathoms. Towards the end of my stay, General Stewart knowing my intense desire to try my fortune in deeper water, placed at my disposal for one day the S. S. "Undaunted" which had been recently armed and put into commission for service as a guard ship. The time allowed was short, but sufficiently long to enable me to bring away samples of the life supported by the sea-bed at, and beyond, the 100 fathoms' line, and to ascertain that the sea-bed was uniformly covered with a thick deposit of fine olive-coloured mud derived from the waste of the coral-reefs and of the sandstone and serpentine rocks of the islands.\* This mud was not very productive, yielding only a few annelids, but was crowded with dead shells of Pteropods and *Dentalium* and with fragments of a large Brachiopod.

It was in the last cast of the dredge that I had the good fortune to capture the interesting addition to the crustacean fauna of these seas, described in the following pages. It is closely allied to *Nephrops Norvegicus* of northern European seas, so closely allied, indeed, that were it not for the absence of the squamiform appendage of the antennæ, I should be under the necessity of placing it in the same genus as a second species. The absence of this appendage, however, leaves me no choice but to establish a new genus for its reception.

\* The following rough analysis by Mr. Tween, the chemist of the Geological Survey of India, will show the proportion of insoluble matter :

Soluble in H Cl mostly Ca O Co <sub>2</sub> , .....	42·8
Insoluble clay and sand, .....	57·2
	<hr/>
	100·0



The discovery in these warm seas of a very near, of the nearest ally in fact, of so characteristic a cold-water species, remarkable though it is, will not appear so surprising when I mention the fact that my crustacean lived and burrowed in the mud of the sea-bed at a depth of nearly 300 fathoms in a temperature not certainly exceeding 50° Fahr.

One of the chief points of interest attaching to this new form lies in the loss of its organs of vision by disuse, as in *Calocaris MacAndrewæ*, Bell, in *Cambarus pellucidus*—a member of the same family as that to which *Nephropsis* belongs—and in the other crustaceans and animals inhabiting the caves of Carniola and Kentucky. I not only agree with Mr. Darwin\* in attributing the loss of the eyes to disuse, but I also regard the great length and delicacy of the antennæ, and the great development of the auditory organs as modifications effected by natural selection in compensation for blindness.†

NEPHROPSIS, gen. nov.

Diag. *Antennal scale absent.*

NEPROPSIS STEWARTI, sp. nov. Pl. IV.

Body covered with fine rounded tubercles and with a short but dense pubescence. The carapace is sub-ovoid, armed on each side, just externally to the base of the rostrum, and behind the anterior margin, with an acute forwardly directed spine; a similar spine springs from each side of the anterior margin itself at about the level of the upper surface of the antennal peduncle; the basis of each of these two spines is confluent with a conspicuous convexity to be seen just behind it; immediately in front of each of these convexities lies a smooth, slightly excavated surface bounded in front by a curvilinear row of tubercles. The cervical suture, dividing the carapace into an anterior or cephalostegal, and into a posterior or omostegal portion, is broad and deeply impressed mesially and laterally, until it reaches the level

\* Origin of Species, 5th Edit., pp. 171-173.

† Since these remarks appeared in the abstract of my paper (Proc. Asiat. Soc. Ben. viii, 1872, p. 151) Dr. Hagen's Monograph of N. American *Astacidae* has reached Calcutta, and from it I give the following extract, on account of its obvious applicability to the species here described, merely remarking that the perusal of it led me to note also the stoutness of the rostrum and the great development of the cephalostegal spines in *Nephropsis* as compared with the slenderness of the one and the minuteness of the others in *Nephrops*: "But it seems to be a somewhat well recognized law in nature (Rathke, Metamorph. Retrograd., p. 135) that if any part is atrophied, or stopped in development, the nearest parts show an abnormal increase of development. This is apparently the case in *C. pellucidus*; the eyes are atrophied, and the rostrum, the fore border of the cephalothorax, the antennal lamina, the basal joint of the inner antennæ, and the epistoma are altered or largely developed." Op. Cit. 34.



of the anterior margin of the epistoma when it bends boldly upwards and backwards upon itself passing into the well-defined semicircular depression that bounds the lateral convexities described above. The cardiac region is broader than long, very convex transversely and bounded on each side by a densely-tuberculated elevation which running backwards, downwards, and forwards along the line of the granulated rim of the branchiostegite, and finally bending upwards almost opposite the origin of the second pair of abdominal appendages, passes again into the swollen anterior boundary of the omostegite; the ovoidal area thus limited off is more sparsely beset with tubercles and presents a marked depression on its anterior half.

The rostrum carries on each side a most acute spine directed upwards and forwards, and curved slightly inwards; and above presents two roughly granulated ridges coalescent towards the tip but divergent at the base; beyond the spines it is canaliculate on each side, above and below, and each lateral ridge is fringed with long hairs; below it is carinated and coarsely granulated at the base. A faint linear impression, continuous with the groove between the ridges on the rostrum, passes along the middle line of the carapace almost to its posterior border; situated in this line, and marking the anterior limit of the convex gastric region, lies an almost erect spiniform tubercle.

*Antennæ and antennules.*—The peduncles of these appendages lie as in *Nephrops Norvegicus* in the same horizontal line, and their inner margins are ciliate. The basal joint, or coxocerite, of the former is extremely short, and wants the apical spine in *Nephrops*, but the perforated conical process on its inferior surface is remarkably salient; the second is devoid both of the prominent spine into which, in *Nephrops*, its distal and external angle is produced, and of the squamiform appendage or scale seen in all the other recognized genera of *Astacidae*,\* and developed to such an extraordinary degree in Carideous Crustacea; one or two small folds or impressions between, or upon, the second and fourth joints being all that remains of the antennal scale, and of the rudimentary joint that in *Nephrops* corresponds to the moveable spine of *Astacus*.†

\* The antennal scale in *Astacoides* escaped the notice of Guérin who founded his genus on its supposed absence.

† There appears to be no doubt but that the antennal scale is the representative of the outer of the two appendages borne upon the protopodite at an early stage of embryonic life, and, if the moveable spine in *Astacus* and its undoubted homologue in the antennæ of *Nephrops* represent the inner of these appendages, then must the three distal joints of the peduncle with the flagellum be looked upon, as Dr. Fritz Müller looks upon them, as a new formation (*Neubildung*) and no longer as being in serial homology with the five distal joints of the other appendages, *e. g.*, of an ambulatory leg, which represent the endopodite, the exopodite being completely aborted or represented at most, as Rolleston remarks, by the annular constriction on



The flagella of the antennæ are remarkably long and of excessive fineness at their extremities.

The basal joint of the antennules has its upper surface greatly inflated, owing to the remarkable development of the auditory organ to which, in most Podophthalmatous Crustacea at any rate,\* this joint gives lodgment; and the almost globular appearance of the joint as seen from the side contrasts strongly with the flatness of its upper surface in *Nephrops* or *Astacus*. Of the two remaining joints of the antennular peduncle, the first is short and cylindrical, being less than half the length of the last which in *Nephrops* is short and equal to that which precedes it. The peduncle terminates in the usual manner in a double flagellum, the outer branch of which is conspicuously stouter than its filamentous and cylindrical fellow, perceptibly compressed, and thickly fringed below with short hairs along its distal third.

The *epistoma* is much the same as in *Nephrops*, save that its posterior edge is straight and presents two small tubercles which give it the appearance of being slightly roundly-emarginate in the middle.

The *external maxillipeds* and the parts of the mouth in front of them are identical in structure with those of *Nephrops*.

The *eyes* are completely rudimentary, neither pigment nor corneal membrane being developed; the peduncles indeed are present, but even these are short, subcylindrical, mere aborted structures, concealed entirely from view by the stout base of the overhanging rostrum; in spirit they have become perfectly blanched like the rest of the appendages, but in life the delicate rose-pink coloration of the animal extended itself to their very tips. The peduncles are far less conspicuous from the side view than represented in the plate.

The first pair of *abdominal appendages*, those which bear the great *chelæ*, are unfortunately absent, the specimen having lost its claws a considerable period previous to its capture, as the presence of uncalcified reproduced rudiments of these appendages indicates; the other legs are smooth and slender; the second and third pairs are didactyle; of these the former has both its upper and lower margins, from the base of the carpopodite to the extremity of the claws, fringed with long hairs; the latter, much the slenderer as well as the longer of the two, has its propodite greatly elongated, and its claws only are ciliated. The fourth pair, the longest of all and ciliated only on the outer face of the dactylopodite, and the fifth, about as long as the second pair, are monodactyle.

the ischiopodite. For the facts relating to the transformation of the embryonic exopodite into the antennal scale of the Prawn *pari passu* with the budding out of the flagellum and the abortion of the endopodite, *vide* Fritz Müller's admirable essay on the development of the crustacea entitled "Für Darwin," p. 41, fig. 31.

\* The caudal ear of *Mysis* forms an exception to this.



The last abdominal somite is immoveably united to that which precedes it as in *Nephrops* and the common Lobster;\* and the sternum is linear as in the *Astacidae* generally.

*Post-abdomen*.—The post-abdomen is gradually attenuated to the extremity of the telson. The appendages of its first somite are as completely rudimentary as they are in the female of *Nephrops Norvegicus*;† those which follow are long and slender, their foliaceous branches being very narrow, produced to a sharp point, and fringed with excessively long cilia. All the terga are covered with minute rounded tubercles, and present at their anterior ends, just behind the tergal facets, a broad smooth transverse groove with its hinder margin convex backwards.

The pleuron of the first somite is precisely similar to that of *Nephrops Norvegicus*, but those of the remaining somites are even more acutely triangular than in that species, and have their margins denticulate and furnished with a fringe of long cilia. In all the somites, with the single exception of the first, the tergal and pleural regions are most sharply defined as such, the former not curving continuously with the latter but terminating abruptly at the level of the ventral chords in a line convex outwards; so that, if a somite were detached, deprived of its ventral chord and flattened out on the table with its dorsal surface uppermost, the imaginary continuation from pleuron to pleuron of the plane in which these pleura laid, would pass below that of the surface of the tergum.

The 'swimmeret' constituted as in all other Macrurous Crustacea by the highly modified and backwardly placed appendages of the last postabdominal somite and by the 'telson,' differs in no particular of more than specific value from that of *Nephrops*; the mesial element, or *telson*, is longer in proportion to its breadth, its greatest breadth, being a transverse line separating its anterior from its middle third, and not at the base as in *Nephrops*, is slightly more truncate posteriorly, and the oblique rounded elevations, that gradually narrow as they pass backwards into the spines at its postero-

\* On characters furnished by the claws alone Dana artificially divides the recognized genera of *Astacidae* into two groups, typified respectively by *Astacus* and *Nephrops*; the first of these is further subdivided according to the number of the branchiæ and the mobility or immobility of the last abdominal somite. But no mention is made of the fact that this is firmly fixed in *Nephrops* too. If *Paranephrops*, a genus including only freshwater forms, should turn out to have a mobile last abdominal somite, then we shall have this curious fact presented to us, viz., that all those members of the family *Astacidae* which live in freshwater or are terrestrial (*Engæus*) have this somite moveably united by membrane only to that which precedes, while those of them that are marine have it fixedly united to the rest of the sternum.

† The ventral plates of the 2nd, 3rd and 4th postabdominal somites in the males of *Nephrops Norvegicus* have an erect spine in the middle line, but the females exhibit no trace of such.



lateral angles, are stronger than in *Nephrops*. The outer plate of the lateral elements of the swimmeret is moveably articulated at its posterior third as in the rest of the *Astacidae*, but the sutural line is curved and the posterior margin of the proximal and larger division exhibits hardly a trace of the overlapping denticulations seen in other *Astacidae*.

Length from tip of rostrum to the posterior margin of telson, . . . . 98 mm.

Length of carapace in middle line, . . . . . 42 mm.

„ „ postabdomen, . . . . . 56 mm.

therefore the postabdomen : carapace (rostrum incl.) ::  $1\frac{1}{2}$  : 1 exactly.

and the length of body : that of postabdomen ::  $1\frac{3}{4}$  : 1 „

The only specimen (a female) obtained was dredged in from 260 to 300 fathoms about 25 miles off Ross Island on the eastern coast of the Andamans. That the specimen was really brought up from this great depth is certain from the unmistakable signs of crushing from contact with the lip of the dredge, from its position in the dredge bag and from its firmly adherent greenish coating which appears to indicate that like *Calocaris MacAndrewæ* it was a burrower.

In conclusion I have to thank Captain Beresford, the commander of the vessel, for his skilful management of the sounding-line and for the zeal displayed by him in carrying out my wishes during our too short cruise.

I have much pleasure in connecting with this extremely interesting species the name of Major General Donald M. Stewart, C. B., Chief-Commissioner of the Andaman and Nicobar Islands, to whose ever ready help the success of my trip was so largely due.

#### Explanation of Plate IV.

- Fig. 1. *Nephropsis Stewarti*, ♀, nat. size.
- Fig. 2. Upper view of carapace of the same.
- Fig. 3. Swimmeret of *N. Stewarti*.
- Fig. 4. „ „ *Nephrops Norvegicus*.
- Fig. 5. Inferior view of antennary region of *N. Stewarti*.
- Fig. 6. „ „ „ „ „ *N. Norvegicus*.
- Fig. 7. Sternal region of *N. Stewarti*.
- Fig. 8. „ „ „ *N. Norvegicus*.



ON NEW OR LITTLE KNOWN SPECIES OF PHASMIDÆ. PART I,—*Genus Bacillus*,—by JAMES WOOD-MASON of *Queen's College, Oxford*.

(Read 7th August, 1872; received February 9th, 1873).

[With plates V, VI and VII.]

The difficulties that have hitherto defied all attempts at anything like a philosophical and natural classification of this interesting and truly remarkable family of Orthopterous Insects, although in a great measure due to the extraordinary extent to which protective modification has involved all parts of the body throughout the group, must be in part, at any rate, ascribed to our ignorance in so many cases of the opposite sexes of the species; and the discovery that *Acanthoderus lacertinus*, Westw. is the female of *Lonchodes luteoviridis* of the same author, renders it extremely probable that these latter difficulties will be found to be further complicated by other cases of the same nature. As instances of the value of a knowledge of the opposite sexes in the limitation of genera, I need only adduce the fact that the capture of *Acanthoderus bicoronatus*, West., and *Acanthoderus semiarmatus*, Westw., in copulâ with their respective males will necessitate the removal of those species, together with their allies, to the genus *Lonchodes*. Thus at the very outset of my researches, I am enabled, by the inestimable advantage of a residence in the great distributional area or metropolis of the family, to withdraw from a genus some of the most *bizarre* of its extremely heterogeneous contents. Since the publication in 1859 of Professor Westwood's classical Monograph of the family, a large number of new or imperfectly known species has been described or remarked upon by various authors,\* but chiefly by

\* Giebel, Zeitschrift für d. gesammt. Naturwissensch. xviii, p. 113.

Stål, Ofversigt af Kon. Vetensk. Akad. Förhand. xv, p. 308.

Coquerel, Ann. Soc. Entom. Fr. 1861, p. 495, pl. 9, fig. 1; Bull. Soc. Ent. Fr. 1866, pp. xxiii-xxiv.

Westwood, Proc. Ent. Soc. Lond, 1864, p. 16; Ann. Soc. Ent. Fr. 4e Sér. t. iv, pl. 6.

Walsh, Proc. Ent. Soc. Phil., iii, p. 409.

Philippi, Stettin Ent. Zeit. 1865, p. 64.

Murray, Ann. and Mag. N. H. 3rd Ser. xviii, p. 265-268.

Kaup, Proc. Zool. Soc. Lond 1866, pp. 577-578.

Scudder, Proc. Bost. Soc. Nat. Hist. xii, pp. 99 and 340.

Lucas, Ann. Soc. Ent. Fr. 4me Série, t. ix, Bulletin, p. xxv.

Gerstæcker, Archiv für Naturgesch. xxxv, p. 211.



Bates,\* de Saussure† and Kaup‡ whom I mention by name on account of the extent and of the extreme value of their contributions. These numerous additions will be enumerated under the genera to which they belong.

### GENUS 1.—BACILLUS, LATR.

Eleven new species have been referred to this genus since the appearance of Professor Westwood's monograph; of these one, viz., *B. patellifer*, Bates, is nearly certainly identical with *B. ? Artemis*, Westw., and two others, viz. *B. gramineus* and *aspericollis*, Bates, are most probably, as indeed the author of those species himself suspects, the opposite sexes of one species. The necessary deductions being made, eight remain, which, added together with those described below to the thirty-eight recognized by Westwood, bring up the total of known species of *Bacillus* to fifty-five.

#### BACILLUS FUSCOLINEATUS, n. sp. Pl. V. Fig. 7.

♂ Extremely slender, filiform, cylindrical. Antennæ of the length of the metathorax, 17-jointed; first joint depressed but not expanded, carinate above, with sub-parallel margins, the inner one of which is raised; second joint nearly twice as long as broad, sub-depressed; the rest filiform. Head scarcely narrowed from the eyes; a brown streak passes from the eye along

\* Descriptions of Fifty-two New Species of Phasmidæ, with Remarks on the Family, Trans. Linn. Soc. Lond. Vol. xxv, pt. I, pp. 321-359, pl. xlv, xlv.

† Rev. et Mag. de Zool. 1859.

Ann. de la Soc. Ent. de Fr. iv, Sér.

Rev. et Mag. Zool. 1861.

Phasmidarum nov. species nonnullæ Rev. et Mag. de Zool. 1868. pp. 63-70.

Mélanges Orthoptérologiques, 2me Fasc. Mém. Soc. Phys. de Genève, xx, pt. 1, pp. 227-326, pl. 2, 3.

‡ Ueber die Eier der Phasmiden. Berlin Entomologische Zeitschrift, Vol. 15, 1870. Neue Phasmidæ.

*Bacillus (Ramulus) Humberti*, ♂ ♀, (= *Lonchodes* sp.) Saussure, Ann. Soc. Ent. Fr. 1861, p. 469. Hab. Ceylon.

*Bacillus (Baculum) ramosus*, ♀, Sauss. Revue de Zool. 1861, 128, et Mém. Orth. Fasc. II, p. 114. Hab. Brazil. (?)

*Bacillus carinulatus*, Sauss. ♂ ♀, Revue de Zool. 1868, 63. 1. et Mém. Orth. 1869. Fasc. II, p. III, Pl. II, fig. 1. ♀ Hab. Ceylon.

*Bacillus gramineus*, Bates, ♂ Trans. Lin. Soc. Lond. 1865, pt. I, p. 326, pl. xlv, fig. 4. Hab. Natal.

*Bacillus aspericollis*, Bates, ♀, l. c., p. 327. Hab. Natal.

*Bacillus Guenzii*, Bates, ♂ l. c., p. 327, Pl. xlv, f. 14 a. Hab. Natal.

*Bacillus patellifer*, Bates, ♀ (? = *Bacillus ? Artemis*, Westwood), l. c., p. 323. Hab. Darjiling!!!

*Bacillus Scytale*, Bates, ♀, l. c., p. 328, pl. xlv, fig. 9. Hab. Ceylon.

*Bacillus leprosus*, Gerst., ♀, Arch. für Naturgesch. xxxv, p. 211. Hab. Zanzibar.

*Bacillus Gerhårdii*, Kaup, ♂, Proc. Zool. Soc. Lond. 1866. Hab. New Zealand.

*Bacillus Geisovii*, ♂, Kaup, loc. cit.,



each side of the body as far as the commencement of the fourth abdominal segment where it becomes somewhat interrupted; the interval between this line and the margins of the dorsal area of the body is silvery white; below, the insect is of an uniform light yellowish green; above, between the brown lateral lines, darker green; the meso- and meta-notum are indistinctly carinate down the middle, and under a moderately powerful lens appear to be marked with delicate wavy transverse striæ; the striation becomes less distinct on the abdominal segments. The abdomen is slightly expanded at the junction of its 4th and 5th segments from which latter it sensibly decreases in width to the apex of the seventh, whence it widens to a trifling extent; seventh segment equal to about  $1\frac{1}{2}$  times the 8th, exactly twice as long as the 9th which is obtusely rounded at the extremity and above presents a median and two lateral less distinct ridges; these latter curve inwards at their apical ends, enclosing a shield-shaped area. Posterior margin of the terminal ventral segment slightly emarginate.

Legs simple, of excessive tenuity; anterior very slightly longer than the posterior pair; intermediate shorter by the length of their own tibia than the former. Cerci long, obtuse, porrected beyond the apex of the abdomen, slightly forcipated and grooved at the sides.

Total length 22 lines; head  $1\frac{1}{4}$ , prothorax 1, mesothorax  $4\frac{1}{2}$ , metathorax  $3\frac{1}{2}$ , abdomen  $9\frac{1}{2} + 2\frac{1}{4} = 11\frac{3}{4}$ ; antennæ  $3\frac{1}{2}$ .

Hab. Murree, Panjab. One specimen collected by Dr. W. Waagen.

*BACILLUS HISPIDULUS*, n. sp. Pl. VII. Figs. 2-3.

♂ Filiform, slender, sordid, with a dark-green median dorsal streak, extending from the apex of the mesothorax to the extremity of the abdomen. Head sub-ovate, with the sides slightly convergent posteriorly, antennæ 16-jointed, joints very distinct; first joint depressed but not expanded; second twice as long as broad, cylindrical, its proximal end the broader. Mesothorax hardly narrower in front than behind. Meso- and meta-notum with a raised median line and a few minute tubercles on their lateral margins. Abdomen cylindrical and filiform to the apex of the 6th segment; whence it suddenly expands to the junction of the 7th and 8th, whence it narrows to its truncate extremity which appears to be constricted between the 8th and 9th segments; six basal segments slightly expanded at their articular ends; 9th segment strongly carinate; the cerci curved and projecting at its postero-lateral angles.

Legs long, slender, and simple; first joint of anterior tarsi greatly elongated; rather more than twice as long as the remaining joints taken together.

Total length  $24\frac{1}{2}$  lines, antennæ 4, head  $1\frac{1}{4}$ , proth. 1, mesoth.  $5\frac{1}{2}$ , metath.  $4\frac{1}{4}$ , abd.  $10\frac{1}{4} + 2\frac{1}{4} = 12\frac{1}{2}$  lines.



♀ Much more robust, with a well-defined median raised dorsal line along the whole length of the body, antennæ absolutely shorter than those of the male, but with the basal joint strongly carinate and more expanded. The mesothorax is visibly attenuated in front from the commencement of its apical third, meso- and meta-notum with a few minute warts along their lateral margins; meso- and meta-sternum with a few similar warts scattered over their surface.

The abdomen is sub-fusiform, depressed to the apex of the 6th segment, and has a distinct ridge, which can also be detected on the thorax, running internally and parallel to the lateral margins of all its dorsal segments except the last; its five posterior segments have another ridge on each side midway between their sides and the median ridge. The posterior margin of the sixth ventral is produced in the middle into a sharp spine with a broad base. The seventh segment is nearly as long as the two last together; these are subequal. The last is subtruncate at its extremity beyond which projects a small triangular azygos plate carinated above. Cerci, in form of a tall four-sided pyramid with its angles rounded, project at the postero-lateral angles of last segment.

Operculum spatulate in outline and flat below, with a broadly rounded extremity, not extending beyond the middle of the last segment.

First joint of tarsus in anterior legs as in the male. The body is covered with very short setæ in both sexes.

Total length, 34 lines, ant.  $3\frac{1}{2}$ , head  $2\frac{1}{4}$ , proth.  $1\frac{1}{2}$ , mesoth.  $7\frac{1}{4}$ , metath.  $5\frac{1}{4}$ , abd.  $15\frac{1}{4} + 2\frac{1}{4} = 17\frac{3}{4}$  lines.

*Hab.*—South Andaman. Three males and three females, of which two were taken *in copulâ*.

I have received from Dr. Stoliczka, who obtained it from the Arakan coast, an insect differing from the male insect above described only in its greater length, in the absence of tubercles on the thorax, and in having two more joints to the antennæ; the measurements are as follows:

Total length 32 lines: ant. 6, head  $1\frac{1}{4}$ , proth.  $1\frac{1}{4}$ , mesoth.  $7\frac{3}{4}$ , metath. 6, abd.  $13 + 2\frac{3}{4} = 15\frac{3}{4}$  lines.

*BACILLUS OXYTENES*, n. sp. Pl. V. Fig. 3.

♀ Excessively long and slender. Head unarmed, narrow, almost cylindrical, being but slightly broader in front than posteriorly, notched behind in middle. Antennæ 28-jointed, as long as the terminal segment of the abdomen; first joint depressed, carinated above and expanded, second longer than broad, also depressed. Mesothorax much longer than the metathorax, sparsely granulated above and below, slightly expanded at the insertion of the legs, otherwise of perfectly uniform width; meta-thorax with only a few scattered granules above and below; meso- and meta-notum with a dark raised mesial line. Abdomen long, perfectly smooth, very gradually and



regularly attenuated from its base to its almost indescribably acute, deeply-cleft, slightly recurved, and strongly compressed extremity. The seventh segment is hardly twice as long as the 8th, which is about a fifth of the length of the last; this has a perceptible upward curvature and is cleft nearly to the insertion of the minute conical *cerci*. The operculum is subdepressed, acutely pointed at the extremity, carinated below and reaches the commencement of the middle third of the last segment, where the *cerci* are inserted.

Legs long, but rather stout as compared with the body, triquetrous; the fore femora are serrated for more than two-thirds of the length of the straight portion, intermediate femora with two or three triangular spines close together above near the base; posterior ones with one or two. Tibiæ with a well defined but not very salient foliaceous carina below; four posterior ones with minute spinules on all their crests. The right middle leg is a reproduced limb, having but four joints to the tarsus and a single spine on the femur.

Total length of the body 4 in. 9 lines; antennæ  $6\frac{1}{4}$ ; head  $2\frac{1}{2}$ ; proth. 2; mesoth.  $11\frac{1}{4}$ ; metath.  $8\frac{1}{4}$ ; abdomen  $23\frac{1}{2} + 10 = 33\frac{1}{2}$  lines.

Abdomen: rest of body :: 1.4255 &c.: 1.

*Hab.*—Pegu Yomah, collected by Mr. S. Kurz, the botanist at the Calcutta Botanic Garden, during his recent botanical tour through Burma and the Tenasserim Provinces.

In the form of the terminal segments of the body, this species approaches *B. Regulus*, Westw. ♀ (Cat. p. 8, Pl. XXII).

#### BACILLUS LÆVIGATUS, Pl. V. Fig. 4.

♀ Very slender and cylindrical and smooth. The head is armed with two minute blunt erect spines between the eyes, and is slightly narrowed behind; its posterior margin with 3 or 4 notches. Antennæ exactly half the length of the mesothorax; first joint depressed and somewhat expanded, feebly carinate above, its outer margin more convex than the inner; second joint fully as broad as long, depressed.

Abdomen extremely long and slender, tapering very gradually to the apex of the seventh segment; whence it very slightly expands to the basal half of the last which suddenly narrows to its extremity; this is divided by a short cleft into rounded tips. 7th dorsal segment equal to 8th, half as long as the last which is carinate above. *Cerci* pointed. Operculum narrow depressed, obtusely pointed, reaching the end of basal third of last segment.

Legs simple; anterior pair tolerably long; anterior femora serrated for three-fourth of the length of upper crest. The first joint of anterior tarsi is twice the length of its homologue in the intermediate legs, which is rather shorter than that of the posterior legs.



Total length of body 2 in. 10 lin, ant.  $3\frac{1}{4}$ , head  $1\frac{3}{4}$ , proth.  $1\frac{1}{4}$ , mesoth.  $6\frac{1}{2}$ , metath. 5, abd.  $15\frac{3}{4} + 3\frac{3}{4} = 19\frac{1}{2}$  lines.

*Hab.*—Samagooting, Naga Hills, Assam. One immature specimen collected by Captain Butler. This species is closely allied to *B. Westwoodii*.

*BACILLUS WESTWOODII*, n. sp. Pl. VI. Fig. 3.

♀ Elongate, slender, sub-cylindrical, convex. Head narrowed from the eyes to the base, with its sides slightly convex, armed between the eyes with two forwardly and slightly outwardly directed spines; and with its posterior margin faintly notched in the middle and on each side. Antennæ more than half as long as the mesothorax, from 21 to 26-jointed; first joint carinated above and depressed but not expanded; second joint nearly as broad as long; the rest filiform with the exception of the last which is thickened at the tip. Mesothorax slightly narrowed in front and, with the metathorax, somewhat expanded at the insertion of the legs. The abdomen is narrowed from the base to the apex of the first segment, expands again to the apex of the second, maintains pretty much an uniform width for the next two or three segments and finally gradually tapers to a point. The seventh dorsal segment is twice the length of the eighth, but hardly exceeds the last. This is cleft and slightly compressed at the extremity. The operculum is somewhat boat-shaped, below strongly carinate for its posterior half, and comes into such close and complete opposition with the margins of the terminal dorsal segments, with which it is coincident, as to conceal from view the genital parts, permitting only the tips of the *cerci* to emerge. Legs triquetrous, their edges beset with short cilia; straight portion of upper edge of fore femora serrated nearly to the apical end; the intermediate and hind femora have a triangular spine below at the apex; all the tibiæ have a foliaceous carina arising near the base and gradually subsiding towards the apex; the posterior ones have sometimes a triangular foliaceous spine near the base above; the intermediate ones sometimes one, two or none. Tarsi triquetrous; first joint of the anterior pair as long as the others taken together; in the other legs it is not nearly as long as the united lengths of the remaining joints.

Total length of the body 4 in. 8 lines, antennæ  $6\frac{1}{4}$ , head  $2\frac{1}{2}$ , proth. 2, mesoth. 11, metath. 8, abdomen  $27\frac{1}{2} + 5\frac{1}{2} = 33$ .

Abdomen : rest of body :: 1·4042 : 1.

In the specimen described, the intermediate legs when stretched straight backwards, reach to the commencement of the posterior third of the fourth abdominal segment, the posterior legs to the *cerci anales*; in other specimens the intermediate legs extend rather beyond the fourth segment, and the posterior ones beyond the extremity of the abdomen.

*Hab.*—Nine adult and three immature females were captured by my



private collector during the months of August, September and October last in the neighbourhood of Port Blair on South Andaman. An immature insect collected by Mr. Homfray at Camorta, Nicobar Islands, differs so slightly from larvæ, beyond doubt belonging to the present species, that I hesitate to give it another name.

**BACILLUS (BACULUM) ARTEMIS, Westwood. Pl. VI. Figs. 1-2.**

*Bacillus? Artemis*, ♀, Westwood, Cat. of Orthopterous Insects in the British Mus., 1859, Pt. I, Phasmidæ, p. 10, pl. xxvi, fig. 9, 9a.

*B. patellifer*, Bates, ♀, Trans. Lin. Soc. London, 1865, Vol. xxv, Pt. I, p. 328.

Numerous specimens of an insect remarkably abundant in the moist, deep valleys of Silkim, in Cachar, in the Bhutan Doars and at Samagooting in the Naga Hills, agree in every respect both with Bates' description of *B. patellifer* and with *Bacillus? Artemis* described and figured by Prof. Westwood from a dried and mutilated example now in the Hopeian collection at Oxford. The comparison of dried specimens in my possession with Westwood's figures shows that the compression of the three terminal segments is mainly, and that the depression and enlargement posteriorly of the sixth dorsal are entirely effects of drying. Bates omits to mention that the terminal dorsal segment is grooved above in the middle line, and that the emargination in its posterior border is occupied by a small carinated azygos plate with a rounded hinder margin; the state of preservation of Prof. Westwood's specimen may probably account for his omission to mention not only these points but even the emargination itself. The following are the dimensions of a specimen from the Naga Hills figured on plate vi.

Total length 4 in. 5 lines, ant. 7 lines (25-jointed), head  $2\frac{1}{2}$ , proth. 2, mesoth.  $10\frac{1}{2}$ , metath. 8, abd. 2 in.  $0\frac{1}{2}$  line + 6 = 2 in.  $6\frac{1}{2}$ .

A variety found in all the districts mentioned above with the exception of the Bhutan Doars is figured side by side with the typical form on the same plate as showing the value of the armature of the legs unsupported by other characters in making a species; almost every gradation from the extremely acanthophyllous and spinose condition of the legs there depicted to their almost completely unarmed condition in fig. 1 being to be met with. Fig. 2 a, 2 b, 2 c may represent the same parts of fig. 1.

**BACILLUS (BACULUM) INSIGNIS, n. sp. Pl. V. Figs. 1-2.**

♀ Extremely robust, greatly elongated, subcylindrical, convex. Head remarkably stout, conspicuously narrowed from the eyes to the base, the sides being almost straight, armed between the eyes with two stout-based, acuminate, forwardly-directed and incurved spines or horns, notched posteriorly in the middle. Antennæ 25-jointed; basal joint depressed, expanded, and carinated above. Mesothorax gradually attenuated from the



base forwards; metathorax of uniform width; both are marked above with a fine raised median line which is continued on to three or four of the basal segments of the abdomen.

The abdomen is attenuated from the base of its third segment to the extremity. The three terminal segments are compressed; the first of these is twice as long as the second; the second  $1\frac{1}{2}$  times as long as the last which is grooved above in the middle line and has its posterior margin divided into two rounded lobes by a narrow fissure filled by the median carina of a small azygos plate; the upper contour of this last segment meets that of the preceding at a very obtuse angle. The operculum extends about one line beyond the abdomen; its posterior half is greatly compressed, so much so at its sub-truncate extremity that its opposite inner faces are in complete contact. *Cerci* minute, conical, their tips alone projecting slightly between the posterior and middle thirds of the last abdominal segment.

Legs stout, triquetrous; upper and lower crests of fore femora inconspicuously serrate towards the base; the intermediate femora are curved, their upper margin forming the convex curvature, and below at the base present two conspicuous divergent foliaceous expansions with rounded free margins, one springing from each crest and a conical spine at the apex; the posterior femora are but feebly curved and exhibit but a faint indication of these foliaceous lobes, and have also a spine at the apex below; all four posterior femora appear to be regularly tricarinate above, owing to the very close approximation of their two upper crests. The intermediate tibiæ have a large foliaceous lobe like a tooth of a saw near the base above, which is much reduced or even absent in the posterior pair; all the tibiæ have a sharp, well-developed foliaceous carina, on their basal third below, which in the fore tibiæ traverses the whole length of the joint. The first tarsal joint in the fore-legs is hardly as long as the other joints taken together; in the other legs it is not nearly as long.

The intermediate legs if stretched backwards would reach only just beyond the apex of the third, the posterior ones to the apex of the sixth abdominal segment.

Total length of body 7 in.  $2\frac{3}{4}$  lines; antennæ  $8\frac{1}{2}$ ; head  $3\frac{1}{4}$ ; proth.  $2\frac{1}{2}$ ; mesoth.  $16\frac{1}{2}$ ; metath. 14; abd.  $40 + 9\frac{1}{2} + \text{operc. } 1 = 50\frac{1}{2}$ .

Abdomen: rest of body :: 1.3655 &c. : 1.

*Hab.*—Samagooting, Naga hills, Assam, (Captain Butler); Sikkim (Mr. Mandelli); and the valleys around Cherra Punji in the Khasi hills (Lieut. Bourne).

BACILLUS (BACULUM) PENTHESILEA, n. sp. Pl. V. Fig. 5.

♀ Elongate, stout, cylindrical, smooth, with a faint raised median line extending from the anterior extremity of the mesothorax nearly to tip of



the abdomen. Head not so stout as in the preceding species, armed between the eyes with two minute conical spinules or tubercles, its posterior margin presents 3 notches giving it the appearance of being bi-tuberculate, narrowed from the eyes to the base. Antennæ very slender, as long as the three terminal abdominal segments taken together, 30-jointed; first joint somewhat expanded; second minute, hardly longer than broad, followed by 28 filiform joints gradually increasing in length to the apical one. Mesothorax uniform in width except at the insertion of the legs where it is expanded. Metathorax broader than the mesothorax and expanded at each end.

Abdomen very long, attenuated from the base of the 5th segment; the three segments anterior to this are uniform in width and broadest of all, broader even than the basal segment which is just perceptibly concave at the sides; the 6th ventral has a rounded punctate callosity posteriorly; the ante-penultimate segment is as long as the two last taken together; the last is grooved above in the middle line, has its posterior angles pointed and rather deflexed than projecting outwards and its hinder margin sub-angularly emarginate, the emargination being filled by an azygos plate which is carinate, has its free margin straight and projecting beyond the acutely angular tips of the segment, and its postero-lateral angles rounded. *Cerci* tolerably salient, obtuse. Operculum subcompressed and carinate for nearly its posterior half, rounded but not compressed at the tip which barely reaches as far as the bottom of the emargination in the last segment.

Legs slender; anterior pair triquetrous; the two other pairs subtriquetrous, their upper crests being not nearly so closely approximated as in the preceding species. The intermediate legs, stretched straight backwards so as to be parallel with the long axis of the body, reach to the middle of the 4th, the posterior ones to that of the 7th segment. The anterior femora are denticulate to beyond the middle of their upper and lower crests; the four posterior pairs are devoid of spines or foliaceous lobes except at their apical ends below where there is a short denticulate elevation, all the tibiæ have a lamellar carina arising and attaining its greatest development near the proximal end; and the distal halves of the four posterior ones are acutely spinulose on all edges. The first joint of the tarsus of the fore-legs is fully as long as, of the intermediate legs shorter than, of the posterior legs almost as long as, the remaining joints together; but the first tarsal joint of 1st legs is longer and slenderer than those of the 2nd and 3rd pairs.

Colour green with the prosternum, bases of all the legs, the stigmata, the spines on the head and the interval between them, and the apex of the abdomen blackish-brown.

Total length, 6 in.  $10\frac{1}{2}$  lines; antennæ, 9 lin.; head,  $3\frac{1}{2}$ ; proth.  $2\frac{1}{2}$ ; mesoth.  $15\frac{1}{4}$ ; metath.  $13\frac{1}{2}$ ; abdomen 3 in. 3 lin. + 9 lin. = 4 in.; ant. legs: femur 23 lin. + tibia 22 + tarsus  $6\frac{3}{4}$  = 4 in.  $3\frac{3}{4}$  lin.; inter. legs: f.  $17\frac{3}{4}$  + tib.



$16 + t. 4\frac{1}{4} = 3 \text{ in. } 2\frac{1}{2} \text{ lin.}$ ; post. legs: f.  $20 + \text{tib. } 18 + \text{tar. } 5 = 3 \text{ in. } 7 \text{ lines.}$

Abdomen: rest of the body ::  $1.3012 \text{ \&c.} : 1.$

*Hab.*—A single specimen was collected in the neighbourhood of Baxa, Bhután Doár, by Dr. Cameron.

**BACILLUS (BACULUM) FURCILLATUS, n. sp. Pl. V. Fig. 6.**

♀ Elongate, cylindrical, smooth. Head unarmed, narrowed from the eyes to the base, with three notches on its posterior margin. Antennæ long and fine, as long as the metanotum proper, or as the two basal segments of the abdomen together, 24-jointed; first joint depressed, not greatly expanded, strongly carinate above; second longer than broad, sub-cylindrical; rest filiform. Meso- and meta-notum with a most delicate median line in relief; the former is of uniform width throughout, the latter very slightly expanded posteriorly at the origin of the legs. Abdomen shorter in proportion to the rest of the body than in the two preceding species, cylindrical to the apex of its fifth segment; whence it becomes slightly compressed and attenuated to its furcate extremity. A small azygos plate carinated above and with its posterior margin rounded, fills the bottom of the interval between the arms of the fork, which conceal its sides from view from above. The operculum is boat-shaped; its extremity which is rounded and slightly spread out horizontally, attains the level of the bottom of the fork only.

The legs closely resemble those of *B. Penthesilea*, but the four posterior femora have some widely-placed spinules on both their inferior crests; the intermediate ones reach to the end of the basal third of the 5th, the posterior extend slight beyond the terminal abdominal segment.

Total length 5 in.  $1\frac{1}{2}$  lin.: antennæ 8; head 3; proth.  $2\frac{1}{2}$ ; mesoth.  $12\frac{1}{2}$ ; metath. 10; abd.  $27\frac{1}{2} + 6\frac{1}{4} = 33\frac{3}{4}$ ; ant. legs, 3 in. 7 lin.; inter. legs 2 in. 6 lin.; post. legs 2 in. 11 lin. Colour uniform green.

The abdomen: rest of body ::  $1.2162 \text{ \&c.} : 1.$

*Hab.*—Baxa, Bhután Doár, collected by Dr. Cameron.

This species is at once distinguished from the two preceding, as indeed these are from one another, by the difference in the structure of the terminal dorsal segment; by the form of the operculum, by the relative length of the abdomen to that of the body, and by the absence of spines from the head.

In the four preceding species to which M. de Saussure's subgeneric term *Baculum* may be provisionally applied, the last dorsal segment of the abdomen is mesially grooved above; the line of structural weakness thus produced, may possibly subserve the purpose of giving greater expansibility to the segment during copulation and oviposition. This peculiarity of structure is present also in *Bacillus (Baculum) Cuniculus*, Westwood, in *B. (B.) Hyphereon*, Westwood, and in *B. (B.)*





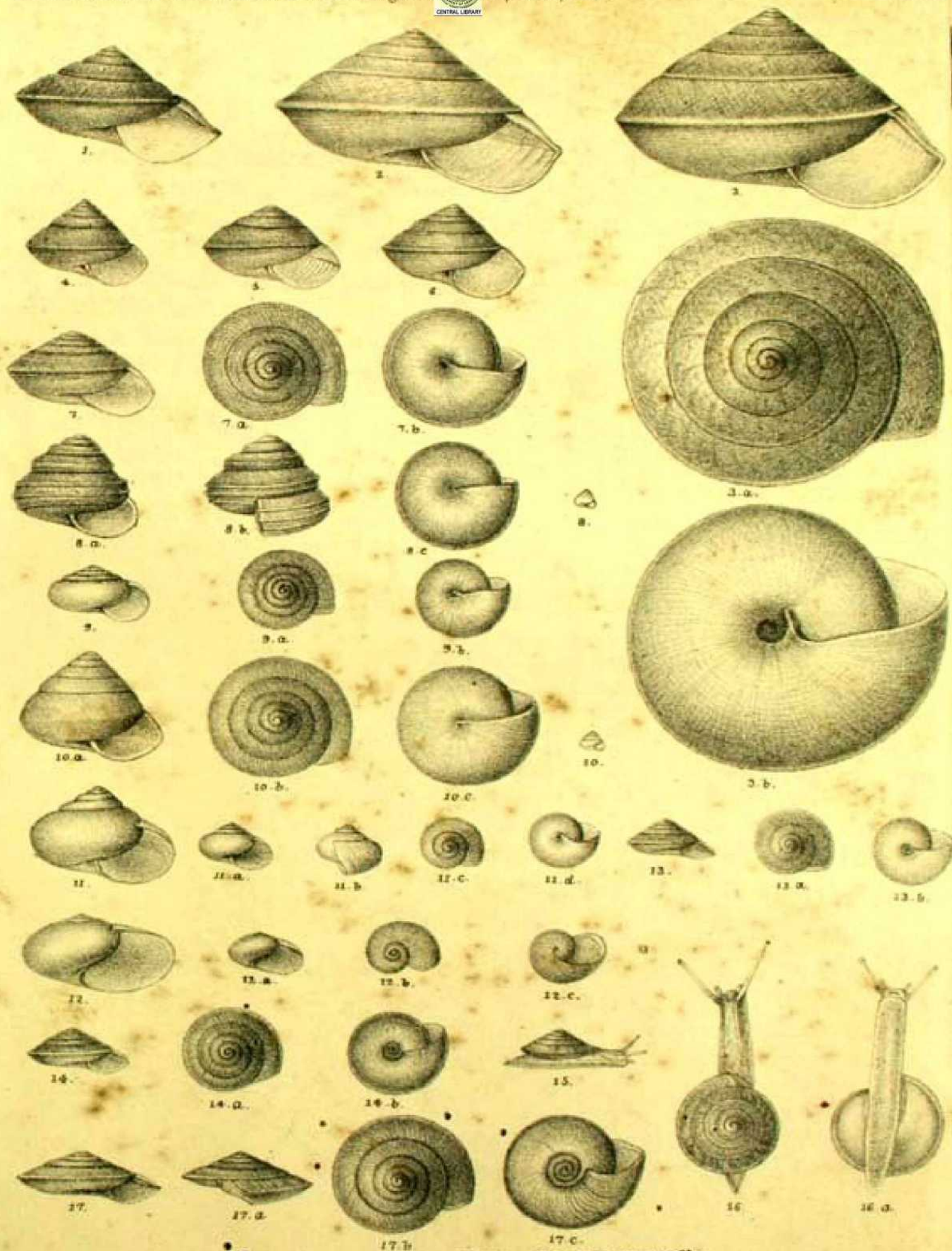
*scytale*, Bates, if one may judge from the published figures of those species. With regard to the last mentioned, it should be noted that Mr. Bates, although he states its affinities to be with the first, at the same time refers it to a totally distinct subgeneric group, viz., to *Ramulus*, de Sauss., in which the abdomen is fusiform and acuminate at the extremity. It is also to be remarked that the species to which *B. scytale* is said to be so nearly related by Bates has turned out not to be a *Bacillus* at all, but a *Lonchodes* very closely allied indeed to *L. pseudoporus*, Westw., if not identical with that species. *Ramulus* is, however, still retained by M. de Saussure for a group of the *Bacilli*, under which *B. humilis*, Westw., *B. carinulatus*, Sauss., &c., have been arranged.

*BACILLUS SCABRIUSCULUS*, n. sp. Pl. VII. Fig. 1.

Very robust. The integument is wrinkled and studded with granulations and small tubercles. Head thick, coarsely granulated, very little narrowed behind, armed between the eyes with two conical spines, projecting outwards and slightly backwards and with their bases united by a transverse elevation, bi-tuberculate posteriorly. Antennæ as long as the metathorax, 18-jointed, ciliated; the first is depressed and expanded, and strongly carinated; the second joint is about half the length of the first, twice as long as broad and depressed; the rest are slenderer than it and filiform. Prothorax narrower in front, with its anterior margin hollowed for the reception of the head, covered with coarse granules. Meso- and meta-notum irregularly wrinkled longitudinally and covered with small tubercles or coarse granules, marked with a raised median line; the former gradually widens from the apex to the insertion of the intermediate legs; the latter is broader and of uniform width, and a distinct suture divides it into an anterior posterior division (the true 1st abdominal segment = *segment mediare*). Below, the granulations and wrinkles are finer. The abdomen is cylindrical to the fifth or sixth segment, whence it becomes suddenly contracted and compressed, but expands again slightly at the apex which is furcate; the bottom of the fork is occupied by a small carinated azygos plate. The upper contour of the three terminal dorsal segments is extremely convex and the posterior margin of the first two of them is produced into a small process. The operculum is lanceolate in outline as seen from below, its posterior half is carinate and its apex barely reaches the level of the minute *cerci*.

Legs long; anterior pair triquetrous, the rest prismatic; anterior femora serrated to the middle of the upper crest; the intermediate ones are armed with three conspicuous dentate foliaceous lobes above and with three small spines on the other crest, one opposite to each of the foliaceous lobes; the posterior femora have some small spines on each of their upper crests. The





Figs 1-3. *Rhyssota cymatium*.

4-7 *Rotala bifuga*.

8 *Sitala carinifera*.

9 *Macrochlamys stephoides*.

10 *Microcystis palmicola*.

Fig. 11. *Helicarion permolle*.

12. *Vitrina nucleata*.

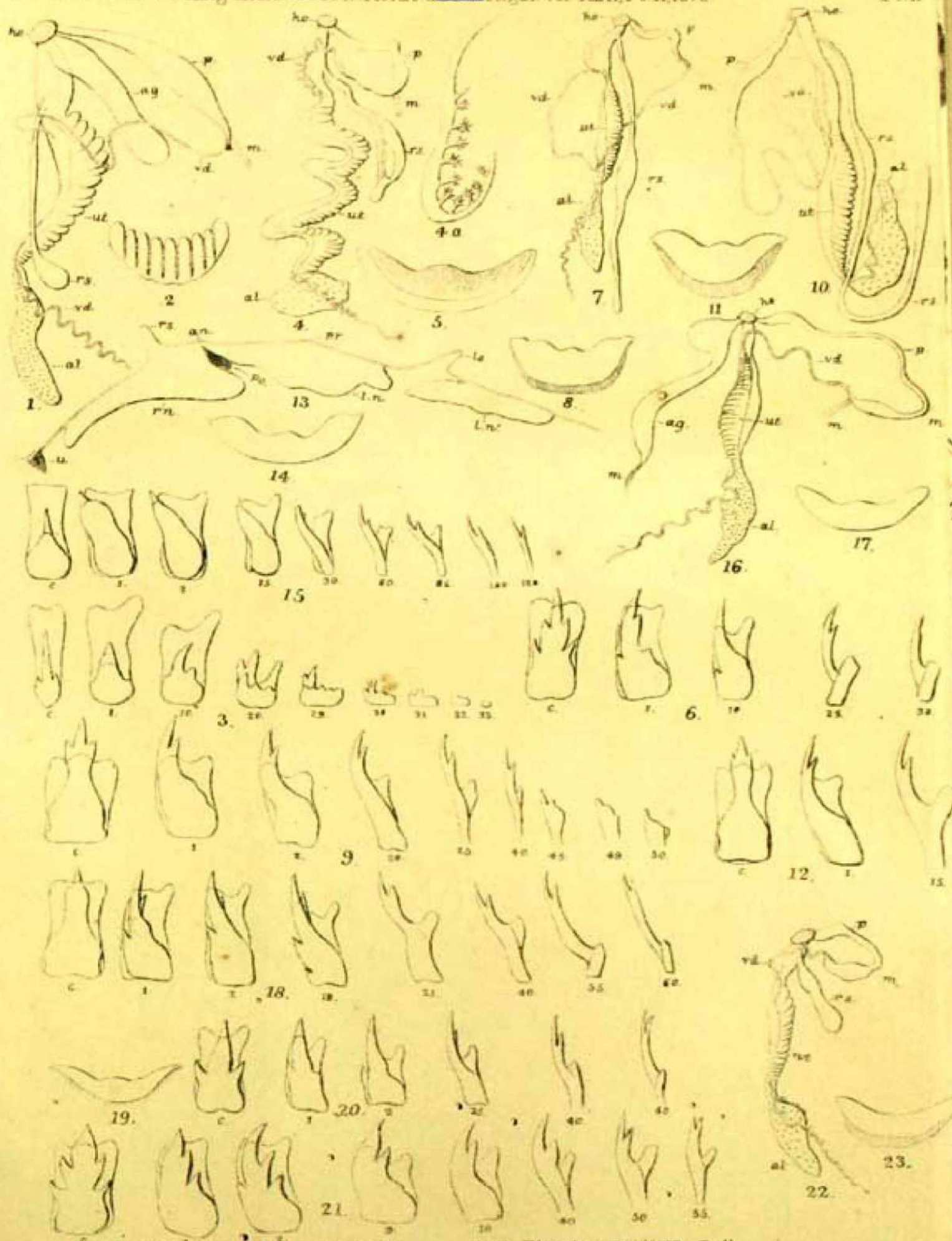
13 *Trochom. Cantoriana*.

14-16 " *castra*.

17. " *Timorensis*.

For further explanation see p. 37.



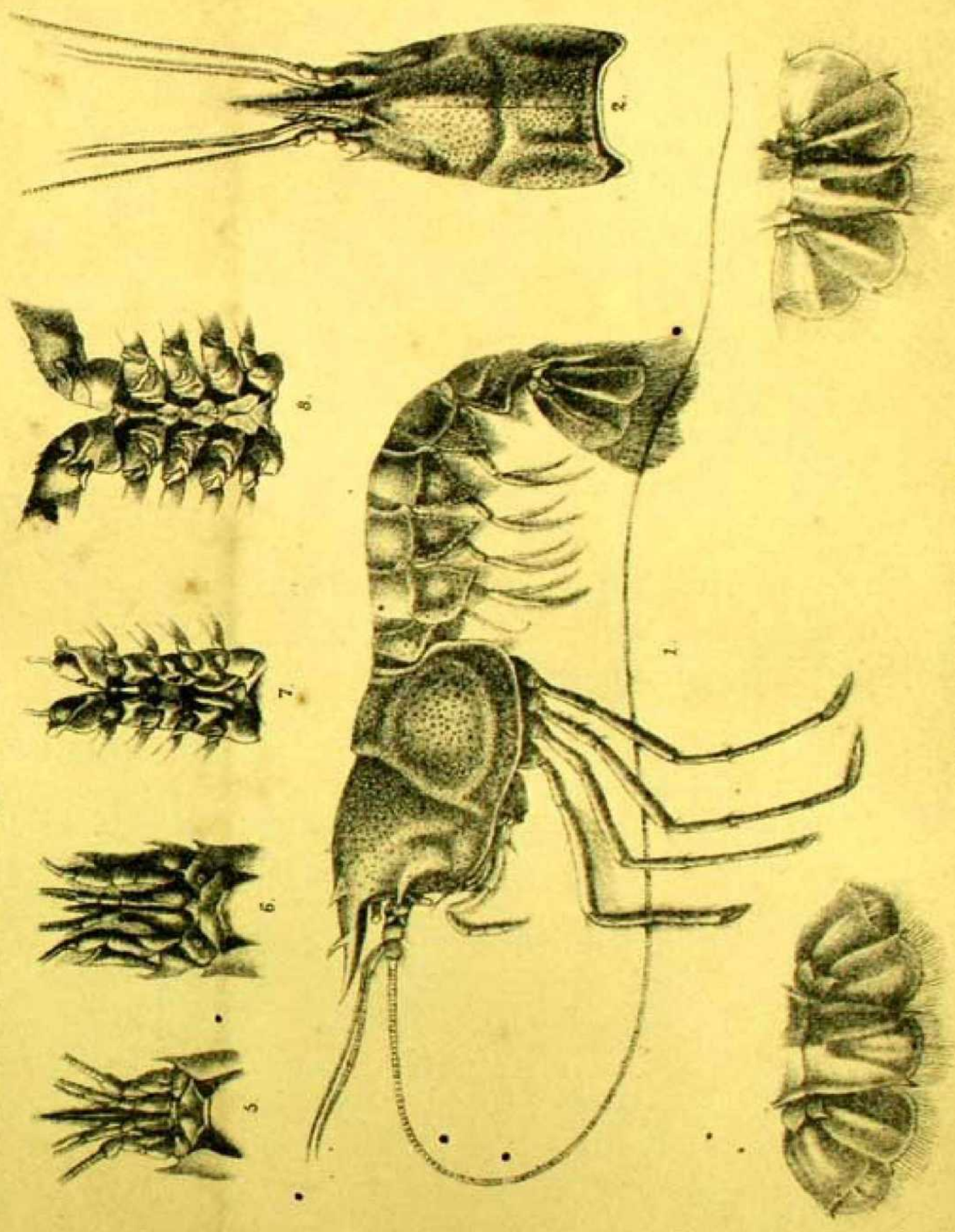
1-3. *Fruticicola similaris*, p. 26.4-5. *Vitrina nucleata*, p. 23.7-9. *Trochomorpha castrea*, p. 21.10-12. " *Timorensis*, p. 22.13-15. *Rhyssa cymatium*, p. 11.16-18. *Rotula hyuga*, p. 14.19-20. *Macrochl. stephoides*, p. 17.21-23. *Helicaron permelle*, p. 18.

For further explanation see p. 37.



WOOD-MASON, Journ. Asiat. Soc. Bengal, Vol. XLII, Pt. II, 1873.

Pl. IV.



*Nephropsis Stewarti*. (see p. 44.)



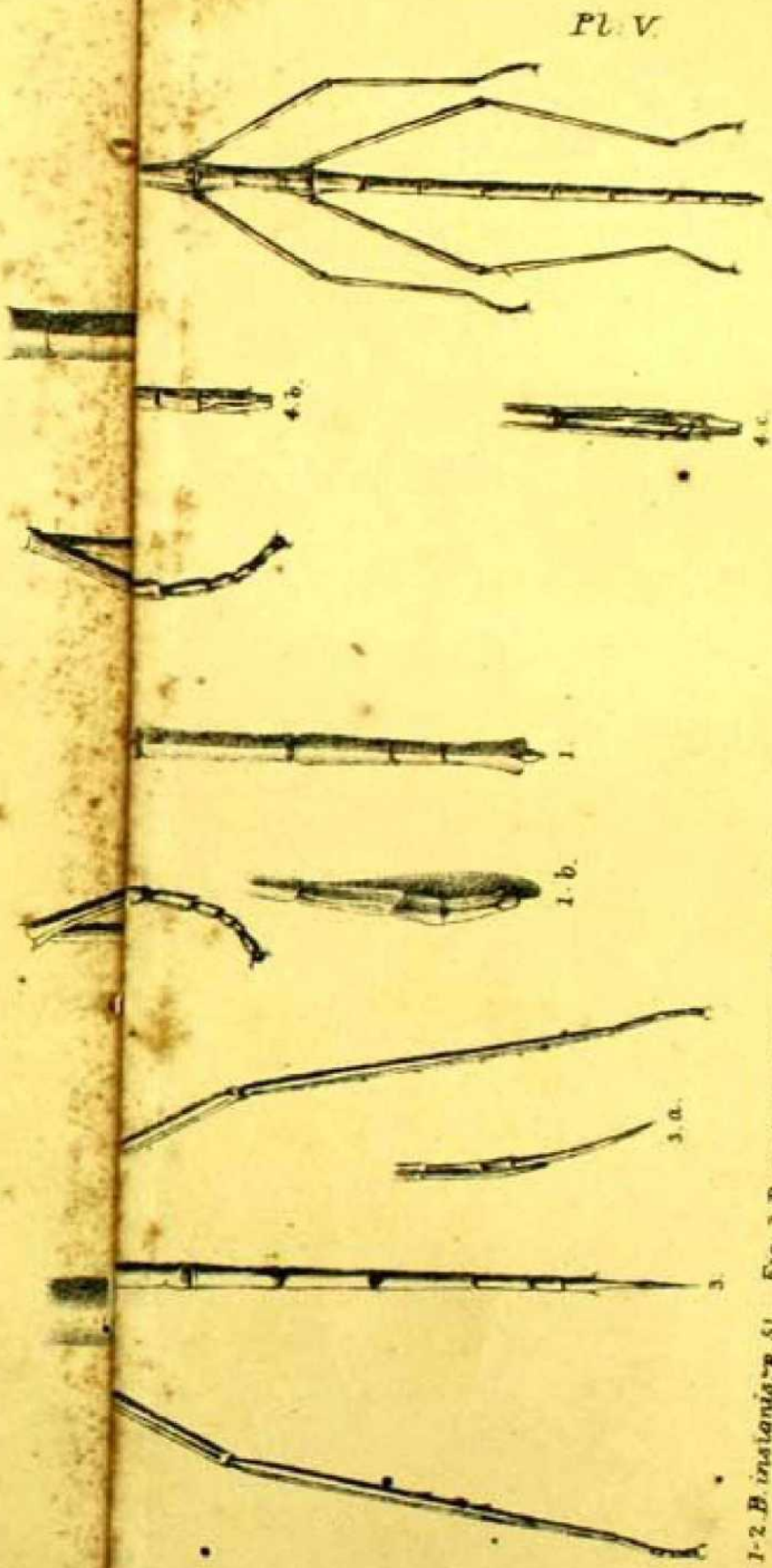


Fig: 1-2 *B. insignis*, p. 51. Fig: 3 *B. oxytenes*, p. 48. Fig: 4 *B. laevigatus*, p. 49. Fig: 5 *B. Penthesilea*, p. 52 Fig: 6 *B. forcillatus*, p. 54.  
 Fig: 7 *B. fuscolineatus*, p. 46.  
 For further explanation see p. 56.



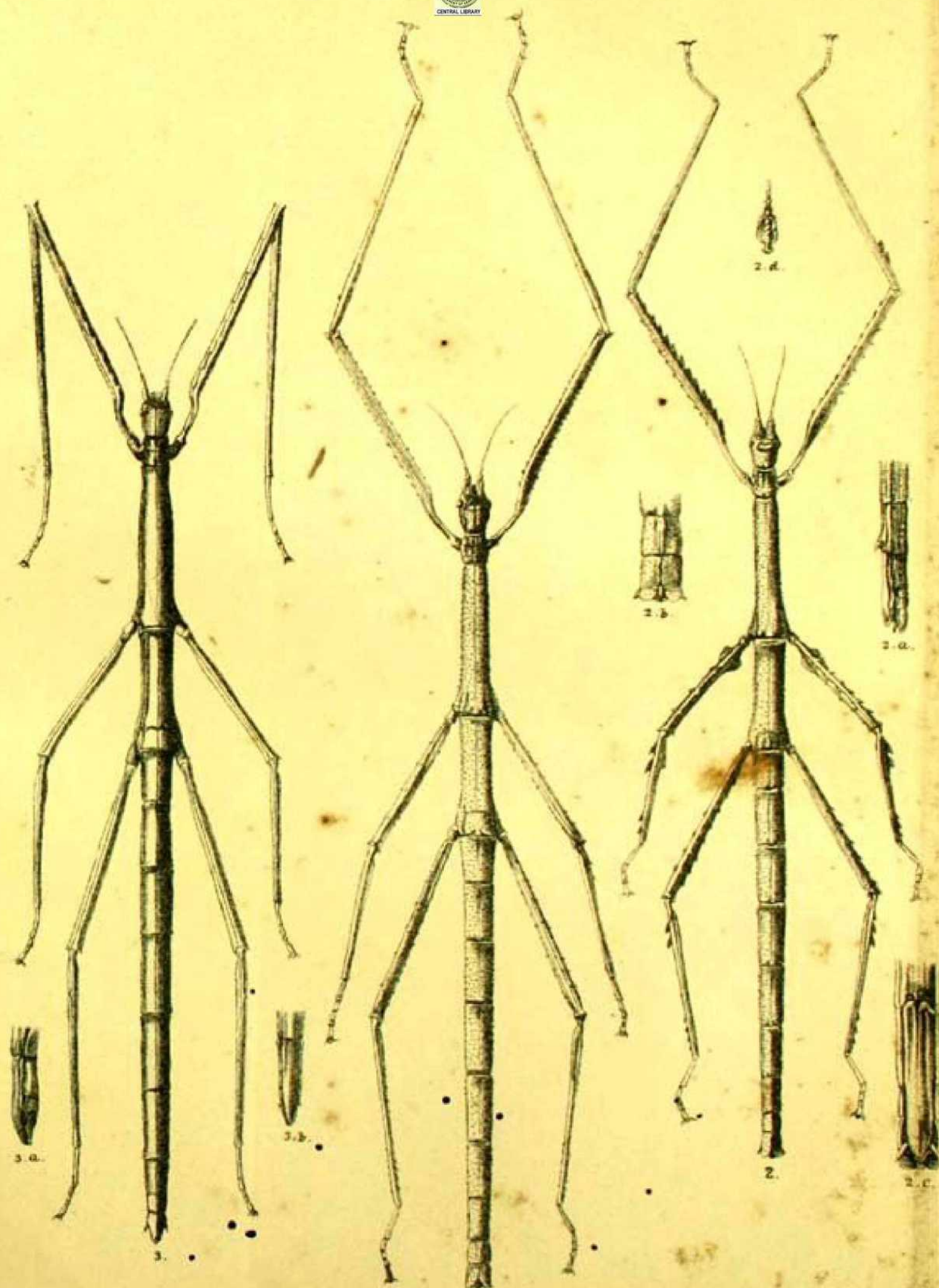


Fig. 1-2. *B. Artemisa*, p. 51. Fig. 3. *B. Westwoodia*, p. 50.  
For further explanation see p. 56.



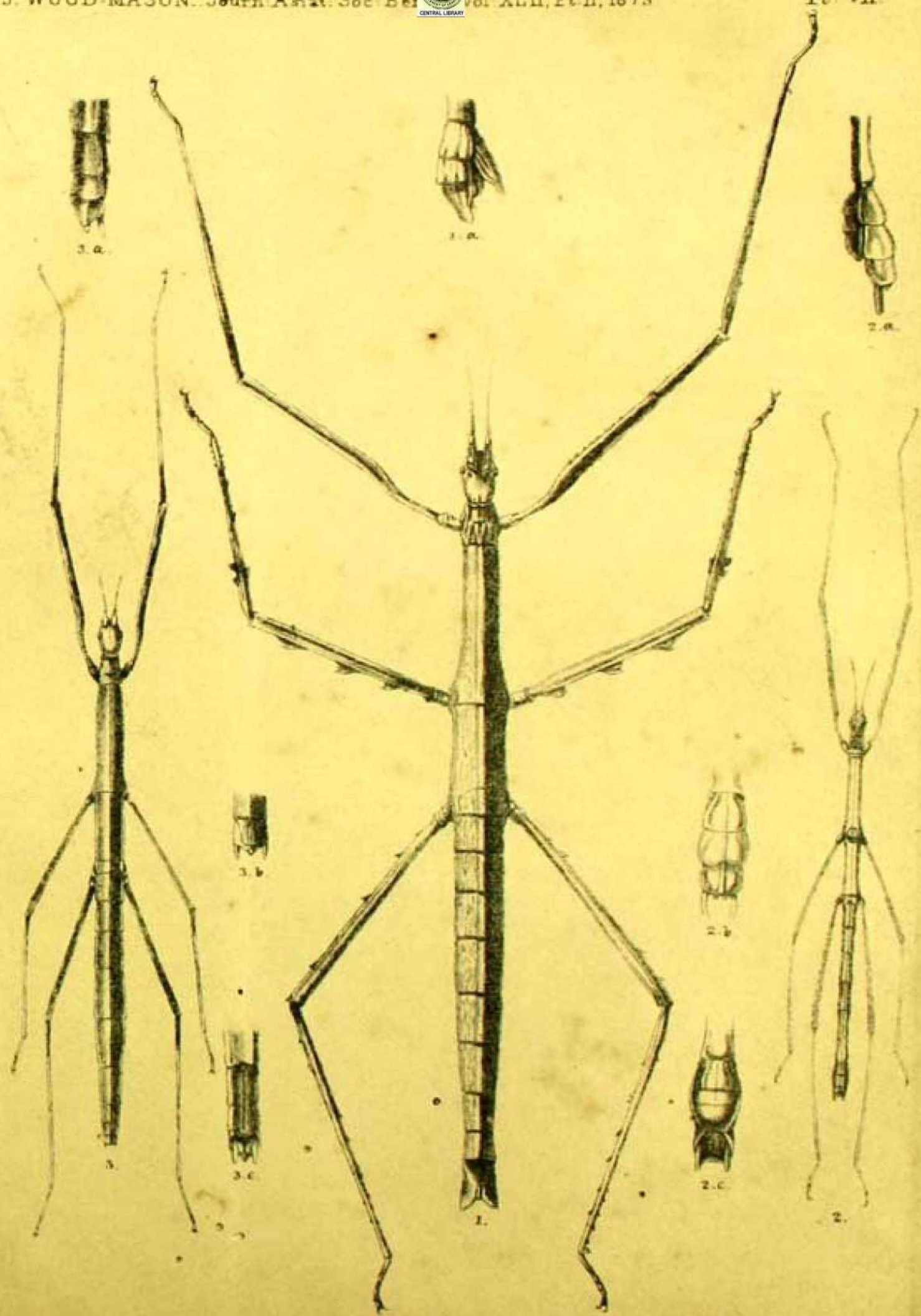


Fig. 1. *B. scabrivisculus*, p. 55. Fig. 2-3. *B. hespidulus*, p. 47.

For further explanation, see p. 56.





# JOURNAL OF THE ASIATIC SOCIETY.

Part II.—PHYSICAL SCIENCE.

No. II.—1873.

NEW BURMESE PLANTS. PART II,—by S. KURZ, Esq.

[Received 15th Feb., read 5th March, 1873.]

[With plates VIII, IX, X.]

## TERNSTROEMIACEÆ.

### 106. ANNESLEA MONTICOLA, nov. sp.

Arbor 80-90 pedalis v. in regionibus altioribus pumila, glaberrima; folia c. 3 (arboris juvenilis usque ad 7) poll. longa, ovato-oblonga, raro lanceolata, basi rotundata v. obtusa et subdecurrentia, breve lateque petiolata, acuminata v. acuta, integra v. obsolete crenata, crassissime coriacea, nervis vix visibilibus, subtus (in sicco) atropunctata; flores majusculi, basi bibracteolati, pedicellis 2, sub fructu usque 3 poll. longis crassis albis ramulos terminantibus; calyx coriaceus, albus; corolla rosea. *Martaban*.—A. crassipedi arcte affinis, pedunculis et foliis acutis distinguitur.

### 107. SAURAUJA ARMATA, nov. sp.

Arbor 25-30 pedalis, novellis squamis adpressis firmis subosseis acutissimis vestita; folia 9-10 pollicaria, lato-ovata ad obovato-oblonga, acuta, basi obtusa, brevissime petiolata (petiolis crassis squamatis); spinescenti serrata, chartacea, glabra, sed subtus secus costam nervosque squamis subosseis adpressis adpersa; flores  $1\frac{1}{2}$  poll. fere in diametro, in pedunculis brevissimis crassis dense squamatis solitarii, vulgo supra foliorum delapsorum cicatricibus fasciculati; sepalâ tomento squamis rigidis adpressis intermixto obducta; ovarium unacum parte unita stylorum 5 dense villosum.—*Martaban*.



## 108. SAURAUJA MACROTRICHA, nov. sp.

Partes omnes (superficie foliorum excepta) pilis longis rigidis ferrugineis v. nigrescentibus vestitæ; folia fere pedem longa v. breviora, lanceolata, utrinque attenuata, breviuscule petiolata (petiolis hirsutis), acuminatissima, setaceo-serrata, chartacea, supra glabra, subtus inprimis secus nervos venulosque rigide hirsuta; flores parvi, longe graciliterque pedicellati, in axillis foliorum v. supra eorum cicatricibus cymas hirsutas formantes; bracteæ parvæ, lineari-lanceolatæ, glabræ; sepala et ovarium glabra; styli 5, erecti, basi uniti.—*Ava.* (J. Anderson.)

## 109. PYRENARIA DIOSPYRICARPA, nov. sp.

Arbuscula novellis tomentellis; folia 4-5 poll. longa, oblongo-v. elliptico-lanceolata, basi acuta et marginibus ut plurimum involutis, breve petiolata (petiolis crassis dense tomentosis), obtusa v. subobtusa, coriacea, juniora utrinque, denuo subtus tantum dense tomentella v. pubescentia, flavescenti viridia, in sicco more *Symploci* lutescentia; flores mediocres, brevissime et crasse pedicellati, solitarii, axillares; bracteæ sepalis longiores, foliaceæ, oblongo-lanceolatæ, basin versus attenuatæ et cum basi latissima sessiles; sepala bracteis conformia, sed minora et gradatim in petala extus dense sericea abeuntia; ovarium dense sericeo-villosum; styli 5, apice liberi, crassi et breves; drupæ pomiformes, 2 poll. circiter longæ, obovato-oblongæ, obsolete obtuseque 3-4-angulares, carnosæ, lævissimæ et cerino-luteæ, nitentes, basi *Diospyrorum* more bracteis sepalisque paullulo accretis sustentæ.—*Martaban.*

## DIPTEROCARPEÆ.

110. SHOREA FLORIBUNDA (*Hopea floribunda*, Wall. Cat. 964).

Arbor verosimiliter decidua, glaberrima; folia juniora oblonga ad elliptica, basi rotundata, petiolis mediocribus gracilibus suffulta, acuta, glabra; flores mediocres, subsessiles, racemosi, in paniculas glaberrimas in axillis foliorum novellorum dispositi; calycis lævissimi lobi 2 interiores paullo breviores; petala semipollicem fere longa, lutescentia?, lanceolata, extus parce pubescentia; stamina c. 15, connectivo in aristam reflexam antheræ longitudine terminato.—*Tenasserim.* (Wall.).

## 111. HOPEA GRIFFITHII, nov. sp.

Glabra; folia ovato-lanceolata, breviuscule sed gracilius petiolata, basi acuta, longe et obtusiuscule caudato-acuminata, coriacea, subtus subnitentia et costa acute prominente percursa, nervis autem lateralibus 12-10 utrinque subtilibus; flores minimi, subsessiles, secundi, flexuoso racemosi, paniculam glabram brevem sed gracillimam formantes; calyx glaber, lobis lato-rotundatis et obtusis; petala extus velutina, lineam circiter longa; antheræ breves arista rigida antheræ longitudine v. longiore terminatæ.—*Tenasserim* (Helf. 717).



*H. jucundæ*, Thw. arcte affinis a qua autem foliorum nervatione valde diversa jam dudum recognoscenda.

112. *HOPEA GRATISSIMA*, Wall. Cat. 960.

Glabra; folia lato-lanceolata, graciliter petiolata, basi acuta, breve et obtusiuscule apiculata, coriacea, supra lucida, nervis 15-16 utrinque subparallelis unacum costa acute prominentibus: flores secundi, breve pedicellati, racemos compositas terminales axillaresque parce puberulos formantes; calyx velutinus, lobis lanceolatis obtusis; petala extus velutina, 2 lin. longa; connectivum arista longa flexuosa terminatum.—*Tenasserim*. *H. diversifoliæ*, Miq., quam maxime affinis, an synonyma?

113. *ANISOPTERA GLABRA*, nov. sp.

Arbor ingens, 100-120 pedalis, glabra; folia circ. 5 poll. longa, elliptica ad oblonga, raro obovato-oblonga, breve acuminata, basi rotundata v. obtusa, coriacea, utrinque glabra, nervis subtus valde prominentibus; petiol. 1—1½ poll. longi, glabri; racemorum pedunculi ferrugineo-tomentosi, glabrescentes; flores desunt; calycis tubus fructigerus glaber, nuci tomentosæ fere ad 2/3 part. adnatus; calycis laciniae inequales, quarum 2 longiores c. 6 pollicares, lineari-lanceolatæ, obtusæ, basim versus sensim attenuatæ, conspicue 3-costatæ et transverse venosæ, glabræ (costis minute tomentosis exceptis); interiores 3 strictæ, erectæ, lineari-lanceolatæ, pollicem fere longæ acuminatæ, basin versus latiores; nux velutina stylo longo acuminata.—*Martaban*. *A marginatæ*, Korth., cui *Shoream Penangianam*, Wall. Cat. 963, synonymam adscriberem, affinis.

*MALVACEÆ.*

114. *BOMBAX INSIGNIS*, Wall. Pl. As. rar. I. 71. t. 79-80.

Species haud cum *B. Malabarica* conjungenda, sed inter alia staminibus bene distinguitur:

*B. Malabarica*: staminum phalanges e filamentis crassis 15-20; *B. insignis*, autem e filamentis 50 pluribusve filiformibus compositæ.

*STERCULIACEÆ.*

115. *HERITIERA MACROPHYLLA*, Wall. MS.

Arbor, omnibus partibus argenteo-lepidotis; folia magna, ovato-oblonga v. oblonga, petiolis parce lepidotis 2-4 poll. longis v. raro brevioribus, basi rotundata et sæpius leviter sinuata, 7-12 poll. longa, acuta v. breve acuminata, coriacea, supra glabra, subtus argenteo-lepidota; flores parvi, dense fulvo-puberuli, 5-raro 7-denticulata, breve pedicellati paniculas axillares amplas ramosas dense fulvo-puberulos formantes; carpella lignosa, suboblique ovalia, canescenti-lepidota et pustulis suberosis rugoso-scabra, facie interna conspicue, extus obsolete carinata, apice in appendicem longiusculum coriaceum



alæformem producta.—*Martaban*. N. B. *H. attenuata*, Wall., Cat. 1140; Horsf. et Benn. H. Jav. rar. 237, a me non visa, vix hujus generis sed probabiliter cum *Brownlowia lanceolata*, Bth., comparanda.

116. *HELICTERES OBTUSA*, Wall. Cat. 1184.

Fruticulus partibus omnibus fulvo-tomentellis; folia oblonga ad oblongo-lanceolata, brevissime petiolata, basi obtusa v. rotundata ibidemque 3-nervia, 2-2½ poll. longa, in eademque stirpe obtusa v. acuta et vulgo mucronata, chartacea, integra, supra pilis brevibus stellatis adspersa, subtus fulvescenti stellato-tomentella; flores parvi, breve pedicellati; cymæ fulvo-tomentellæ, brevissimæ, axillares, paucifloræ, graciles; calyx circ. 2 lin. longus, stellato-tomentellus et subfurfuraceus; petala sublongiora; staminum columna glabra; capsulæ oblongæ, breves, circ. 7-8 lin. longæ, dense villosomuricatæ, carpellis inter se arcte coherentibus obtusis v. subobtusis.—*Martaban, Tenasserim*. *H. lanceolata*, DC. (= *H. virgata*, Wall.) affinis.

117. *PTEROSPERMUM ACEROIDES*, Wall. Cat. 1171.

Arbor, novellis dense tomentosis; folia elliptica v. lato-oblonga, ut plurimum subobliqua, arboris junioris palmato-5-7-loba, breviuscule petiolata, profunde et saepius inaequali-cordata, verosimiliter nunquam peltata, breve acuminata v. apiculata, supra glabra, subtus canescenti v. fulvescenti-tomentosa, basi 5-7-nervia; stipulæ...; flores magni, albi, breve crasseque pedicellati, 3-v. 2-ni axillares et subcymosi; bracteolæ oblongo-lanceolatæ, tomentosæ, integræ; calyx 2-3 poll. longus, sepala crassissime coriacea, linearia, ferrugineo-tomentosa, extus striata, intus fulvo-stellato pubescentia; stylus glaber; ovarium fulvescenti-tomentosum; capsulæ 5-angulares, oblongæ.—*Tenasserim, Andamans*.

*TILIACEÆ.*

118. *BERRYA MOLLIS*, Wall. Cat. 1186.

Arbor magna, novellis tomentellis; folia cordato-rotundata, lata, circ. 6-7 poll. longa et lata, basi palmato-7-9-nervia, petiolata, petiolis 4-5 poll. longis dense puberulis v. tomentellis, obtusiuscula v. acuta, obsolete repanda et in lobos 2-3 breves obtusos producta, chartacea, adulta supra (nervis pubescentibus exceptis) glabra, subtus dense puberula v. subtomentosa; flores c. 4-5 lin. in diametro, albi, paniculas laxas fulvo-tomentosas terminales formantes; pedicelli longi, tomentosi; calyx extus dense tomentosus, profunde 2-3-fidus, in alabastro subglobosus; petala obovato-lanceolata, calyce longiora; stamina numerosissima et conferta; stylus simplex, glaber; ovarium villosum; capsulæ unacum alis oblique oblongis nervosis c. 2-2½ poll. in diametro, tomentellæ, siccæ, brunneæ; semina globosa.—*Pegu, Martaban*.



## 119. GREWIA SCABRIDA, Wall. Cat. 1113 (pro parte).

Frutex ? novellis ferrugineo-tomentellis ; folia oblonga v. ovato-lanceolata, 5-6 poll. longa, petiolis brevibus ferrugineo-tomentosis, basi obtusa v. rotundata, serrata, acuminata, chartacea, utrinque (præsertim subtus) stellato-hirta et scabra, 3-nervia, venis transversis valde conspicuis ; flores circ. 8-10 lin. longi, pedicellis sulcatis ferrugineo-tomentosis et subfurfuraceis, 2-3-næ cymas parvas ferrugineo-tomentosas axillares formantes ; sepala 7-8 lin. longa, lineari-lanceolata, extus scabriusculæ ferrugineo-tomentella ; petala circ. 2 lin. longa, lamina oblongo-lanceolata obtusa et a foveolâ latâ crassâ dense fulvo-villosâ usque ad basin fere separabilis ; gynophorum et ovarium fulvo-villosa ; drupæ profunde 4-lobæ, sed sæpe loborum unus alterve abortivus, lobis obtusis et divergentibus parce hispidis glabrescentibus, pollicem fere in diametro ; mesocarpium fibrosum, coccis monospermis.—*Martaban, Tenasserim.* Species *G. odorata*, Bl. (*G. umbellata*, Roxb.) et *G. columnari*, Sm. valde affinis, sub eodem nomine cum *G. pilosa*, Lamk., a cl. Wallichio distributa indeque a Wightio et Arnotto cum eadem confusa. *G. retusifolia*, Kurz in hocce diario, 1872, p. 294 proposita, foliis profunde retusis in sinu mucronatis insignis, teste cl. Mastersio ad *G. humilem*, Wall., speciem nondum descriptam, pertinet.

## 120. GREWIA MICROSTEMMA, Wall. ap. Voigt. Cat. Hort. Suburb. Calcutt. 128.

Frutex novellis scabro-puberulis ; folia oblonga v. ovato-lanceolata, basi inequali-rotundata, brevissime petiolata, 5-7 poll. longa, acuminata, duplicato-serrato-dentata, chartacea, utrinque (præsertim subtus) scabro-puberula, 3-nervia, cum nervo adjecto ad latus latius ; stipulæ petiolis fulvo-tomentosis longiores, subulatæ, strictæ, scabro-puberulæ ; flores parvi ; pedicelli tomentosi, breves ; cymæ multifloræ brevissime pedunculatæ 2-3-næ axillares ; sepala circ. 2 lin. longa, fulvo-puberula ; petala lineari-lanceolata, 1 lin. longa, longitudine foveolæ ovalis villosa-ciliatæ incrassatæ, dorso linea hirsuta notata ; stamina in floribus masculis 16 ; ovarium hirsutum ; drupæ...—*Pegu.*

121. COLUMBIA FLORIBUNDA, (*Grewia floribunda*, Wall. ap. Voigt. Cat. Hort. Suburb. Calc. 128 ; *Glossospermum* ? 5-alatum, Wall. Cat. 1154 et 7841).

Frutex scabro-stellato-hirtellus ; folia rotundata v. lato-obovato-oblonga, basi vulgo cordata, petiolis longiusculis gracilibus scabris, acuta v. breve acuminata v. obtusa, apicem versus sæpius in lobos 2 v. unicam obtusum v. truncatum raro acutum producta, distanter dentata, basi vulgo 7-nervia, membranacea, supra stellato-scaberrima, subtus plus minus pilis stellatis puberula et mox scabrescentia ; flores parvi, pedicellis gracilibus brevibus



tomentellis, in cymulas pedunculatas dispositi et paniculam terminalem laxam canescenti-puberulam efficientes; sepala lineam circiter longa, extus canescenti-tomentella; petala obovato-oblonga, obtusa, sepalis subæquilonga, basi foveola minuta incrassata villosa-ciliata aucta; capsulæ 7-9 lin. in diametro, stellato-puberulæ, scabræ, siccæ, maturæ in carpida 3-4 indehiscentia monosperma bialata separantes.—*Ava, Martaban.*

122. *EVODIA VITICINA*, Wall. Cat. 1219.

Frutex? glaber, ramulis lineis 4 acute prominentibus notatis; folia 3-v. uni-foliolata in eodem v. diversis ramulis, opposita, glabra, petiolis  $\frac{1}{2}$ — $\frac{3}{4}$  poll. leviter alatis; foliola 2-3 $\frac{1}{2}$  poll. longa, lanceolata v. obovato-lanceolata, basi attenuata et subsessilia, membranacea, breve acuminata, subtus pallida; paniculæ contractæ et parvæ, puberulæ, petiolis v. multo breviores v. subæquilongæ; flores parvi, brevissime pedicellati; petala 4, lineari-oblonga, obtusa, subcoriacea; carpella....—*Tenasserim.*

123. *LIMONIA ALTERNIFOLIA*, Wall. ap. Voigt. Hort. Calcutt. 139.

Fruticulus gracilis, simplex v. parce ramosus, deciduus, inermis, glaberrimus; folia impari-pinnata, rachide anguste alata; foliola 5-7-juga cum impari, alterna, subsessilia, oblongo-lanceolata ad lanceolata, oblique acuminata, crenata, glabra, 1-1 $\frac{1}{2}$  poll. longa, pellucido-punctata; flores pentameri, parvi, albi, e ramulis novellis axillaribus brevibus orientes et cymam brevem glabram breve pedunculatam v. subsessilem efformantes; calycis lobi trigono-oblongi, acuta,  $\frac{1}{2}$  lin. longi; petala 3 lin. longa, acutiusecula; stamina 10, alternatim breviora, filamenta basi intus parce puberula; ovarium obovatum, compressiusculum, læve, toro brevi crasso insidens, 2-loculare, loculis ovulo solitario pendulo; stylus curvus, stigmate incrassato; torus post præflorationem productus; baccæ....—*Pegu.*

*SIMARUBEÆ.*

124. *BRUCEA MOLLIS*, Wall. MS.

Fruticulus simplex v. subsimplex, 2-3 pedalis, novellis puberulis v. pubescentibus; folia imparipinnata, petiolus rachisque teres puberuli, glabrescentes; foliola 4-6-juga cum impari, ovato-oblonga v. ovato-lanceolata, longiuscule petiolulata, acuminata, integerrima, membranacea, supra sparse, subtus densius, pubescentia v. præter nervos pubescentes glabra, 2-3 poll. longa; flores minuti, graciliter pedicellati, racemos puberulos v. pubescentes simplices graciles folio multo breviores axillares formantes; drupæ solitariae v. binæ, rarius ternæ, ovatae, pisi majoris magnitudine v. majores.—*Martaban.* *Brucea* genus magis ad *Tapiriam* inter *Anacardiaceas* spectat.



*MELIACEÆ.*

125. *CHICKRASSIA VELUTINA*, (Swietenia velutina et S. villosa, Wall. Cat.).

Species mihi bona, a Ch. tabulari distinguitur novellis, foliis etc. molli-ter pubescentibus, foliolis numerosioribus supra velutinis subtus molliter pubescentibus; paniculis ferrugineo-tomentosis; floribus majoribus; petalis obovato-oblongis 5-6 lin. longis; calyce dense fulvo-tomentoso; capsulis atris, sublaevibus.—*Pegu*, etc.

*CELASTRINEÆ.*

126. *MICROTROPIS LONGIFOLIA*, Wall. Cat. 4339 (pro parte).

Frutex? glaber; folia oblongo-lanceolata v. oblonga, petiolis crassis 4-5 lin. longis, breve acuminata, basi acuta, 6-7 poll. longa, integra, coriacea, utrinque (præsertim supra) rugulosa, opaca; flores breve cymosi; pedunculus 4-6 lin. longus; capsulæ obovatæ; testa seminis rubra.—*Tenasserim*. *G. latifolia*, Gais., in Hb. Kew assimilis, nervatione autem diversa.

*AMPELIDEÆ.*

127. *LEEA COMPACTIFLORA*, nov. sp.

Arbuscula *L. sambucinae* valde affinis, sed foliola angustiora, argute serrato-dentata, longe acuminata; inflorescentia petiolo multo brevior, ferrugineo-tomentosa; flores viridiusculi, sessiles, bracteis latis brevibus ovatis acutis subscariosis circumdati et in glomerulos compactos congesti; fructus non adsunt.—*Martaban*.

128. *LEEA GIGANTEA*, Griff. Not. Dicot. 697. t. 645, f. 3.

Frutex simplex, elatus, glaberrimus; folia largissima, supra-decomposita, petiolus compressiusculus lævis; foliola vulgo magna, 6-8 poll. longa, petiolulis  $\frac{1}{2}$  (terminali usque ad 2) poll. longis, oblonga ad oblongo-lanceolata, breve et abrupte acuminata, basi acuta, grosse crenato-serrata, tenui-coriacea, glaberrima, lucida, siccando nigrescentia, nervis subtus prominentibus; flores parviusculi, virescenti-albidi, pedicellis brevissimis robustis v. subsessiles, in cymam amplam diffusam 2-3-chotomice ramosam glaberrimam axillarem v. subterminalem petiolorum longitudine v. longiorem dispositi; bracteæ bracteolæque ante anthesin caducissimæ; calycis lobi breves, rotundati v. subacuti, glabri; petala reflexa, lineam circiter longa; lobi tubi staminum triangulari-lanceolati, acuminati, apice integro reflexi; baccæ depressoglobosæ, 4-6 spermæ; semina obtuse carinata, lateribus tuberculato-costatis.—*Tenasserim*.

129. *LEEA LETA*, Wall. Cat. 6831.

Frutex humilis, 2-3 pedalis, glaber; folia bipinnata, petiolis teretibus; foliola petiolulis 1-2 lin. longis, oblongo-ad ovato-lanceolata, 5-8 poll. longa,



basi rotundata subinequalia, acuminata, crenato-serrata, membranacea, glabra siccando magis minusve rubescentia; flores parvi, rubri, pedicellis brevibus tomentosis, cymas compositas breves sessiles v. pedunculatas compactiusculas v. raro diffusas axillares efficientes; bracteæ bracteolæque ante anthesin caduæ; calycis lobi triangulares, acuti, glabri; petala lineam fere longa; tubi staminei lobi emarginati; baccæ desunt.—*Burma, Andamans.*

130. *LEEAE SANGUINEA*, Wall. ap. Voigt. Cat. Suburb. Calcutt. 30.

Herba perennis, caulibus crassis teretiusculis, glabra; folia inferiora decomposita, superiora impari-pinnata, summa sæpius ternata, petiolis, petiolulis rachique anguste membranaceo-4-alatis; foliola vulgo 3-juga cum impari, elliptico-oblonga ad oblongo-lanceolata, terminali longius petiolulato sæpius ovato-oblongo, brevissime petiolulata v. subsessilia, 6-8 poll. longa, acuta, argute serrata, glabra, nervis parallelis venisque transversis subtus valde prominentibus; cymæ vulgo a basi ramosæ v. pedunculatæ, trichotomo-ramosæ, pedunculis et ramificationibus purpurascentibus compresso-angulatis glabris; bracteæ, bracteolæque ante anthesin deciduæ; flores parvi, coccinei, pedicellis brevibus crassis glabris suffulti; calyx 5-dentatus, coccineus, lobis acutis; petala coccinea, lineam circiter longa; tubus stamineus cerino-albus, lobis emarginatis; filamenta subpurpurascentia; baccæ depresso-globosæ, pisi magnitudinis, vulgo 6-spermæ, aurantiacæ.—*Ava.*

N. B.—*Vitis Wallichii*, Kurz in hocce diario 1872, p. 302 (*Leea cordata*, Wall. Cat. 6819) ad *V. Linnæi* formas probabiliter reducenda, a quibus autem cymis axillaribus (nec oppositifoliis) differre videtur.

*ANACARDIACEÆ.*

131. *MANGIFERA CALONEURA*, nov. sp.

Arbor mediocris, glabra; folia oblonga ad oblongo-lanceolata, 3-5 pollicaria, petiolo basi valde incrassato 1-½ poll. suffulta, obtuse acuminata, coriacea, glabra, utrinque elegantissime minute et prominenter reticulata, costâ crassa lata præsertim supra prominente et subplana percursa, nervis lateralibus vix curvis 18-20, tenuibus; flores parvi, sessiles v. subsessiles paniculam terminalem tomentosam amplam formantes; calyx pubescens; petala lanceolata, acuta, reflexa, lineam circiter longa, ciliolata, alba, medio linea citrina percursa; stamen 1, anthera atropurpurea; discus 5-lobus, lævis; drupæ ovi gallinacei magnitudine subreniformi-ovoideæ, læves, obtusæ, aurantiacæ v. lutæ, acido-dulces, subtæretes.—*Pegu, Martaban.* M. Indicæ affinis, reticulatione elegantissima statim recognoscenda.

N. B.—*Bouea Brandisiana*, Kurz in Journ. As. Soc. 1871, p. 50, ad *B. Burmanicam*, Griff. in hocce diario, 1854, p. 634, referenda.



*LEGUMINOSÆ.*132. *MILLETTIA MONTICOLA*, nov. sp.

Frutex alte scandens, deciduus, novellis parce ferrugineo-pubescentibus glabrescentibus, ramis verrucosis; folia novella (adulta non visa) imparipinnata; foliola 4-3-juga cum impari, petiolulata, oblonga, breve acuminata, subtus secus nervos adpresse fulvo-pubescentia; flores azurei, parviusculi, pedicello 1-2 lin. longo ferrugineo-tomentoso suffulti, fasciculati, in racemos simplices solitarios ferrugineo-tomentellos 4-7 pollicares supra foliorum delapsorum cicatricibus orientes dispositi; calyx parce ferrugineo-tomentosus, 2-2½ lin. longus, longior quam latus, obsolete et lato-dentatus, denticulo anteriore paullo producto; corolla glabra, vexillo circiter semipollicari; ovarium tenuiter ferrugineo-pubescentibus; legumina desunt.—*Martaban.* *M. pachycarpæ*, Bth., arete affinis.

133. *MILLETTIA LEIOGYNA*, nov. sp.

Frutex deciduus alte scandens novellis ferrugineo-tomentosis; ramis teretibus minute lenticellatis; folia novella (adulta desunt) ferrugineo-tomentosa, imparipinnata; foliola 4-6-juga cum impari; flores majusculi, violacei, vexillo in fundo luteo, pedicellis 2-3 lin. longis nutantibus velutinis suffulti, racemos 4-5 pollicares fulvo-tomentosos e ramulis abbreviatis lateralibus ortos formantes et sæpius in paniculam amplam lateralem collecti; calyx latior quam longus, 2-2½ lin. longus, fulvo-velutinus, obsolete dentatus, dente anteriore paullo producto; corolla glabra, vexillum ½ poll. longum, emarginatum; ovarium læve; legumina juniora linearia, læves, subulato-acuminata.—*Martaban.* *M. extensæ*, Bth., affinis.

134. *MILLETTIA GLAUDESCENS*, nov. sp.

Arbor magna, decidua, glabra v. sæpius novellis parce pubescentibus; folia imparipinnata, ½-1 ped. longa, glabra, v. rachi et petiolulis parce puberulis; folia elliptica ad obovato-oblonga et oblongo-lanceolata, vulgo 3-4-raro 2-juga cum impari, obtusiuscule et subabrupte acuminata v. apiculata, petiolulis 2-3 lin. longis gracilibus glabrescentibus, integra, 3-4 poll. longa, membranacea, glabra v. subtus secus costam subpubescentia, subtus glaucescentia; flores parviusculi, cyanei, pedicellis capillaribus puberulis v. subglabris 3-4 lin. longis, in racemos graciles glabros v. puberulos solitarios v. secus ramulos novellos aphyllis aggregatos dispositi; calyx latior quam longus, parce pubescens, 1-1½ lin. longus, obsolete lato-dentatus; corolla glabra; vexillum obsolete emarginatum, ½ poll. fere longum; ovarium adpresse sericeum; legumen oblongum, basi attenuatum, lignosum, incurvato-acutum, planum, suturis in alas angustissimas dilatatis undequæ quasi subquadrangulato-alatum, glabrum, lenticellis rimosis sparse obtectum, 3-4 poll. longum, 2-3 lin. crassum, 1-3-spermum.—*Pegu, Martaban.*



135. *MILLETTIA PUBINERVIS*, nov. sp.

Arbuscula 20-25 pedalis, novellis puberulis; folia impari-pinnata, c.  $\frac{1}{2}$  ped. longa, rachi puberula; foliola elliptico-ad obovato-oblonga, petiolulis gracilibus 1-2 lin. longis puberulis, longiuscule et obtusiuscule acuminata, 2-3 poll. longa, tenuiter chartacea, integra, subtus glauca et secus costam pubescentia; flores parviusculi, luride lutescenti albi, pedicellis capillaribus pubescentibus, solitarii v. fasciculati, racemos solitarios oppositifolios graciles luteolo-pubescentes  $2\frac{1}{2}$ -3 poll. longos formantes; calyx rubicundus, latior quam longus, circ.  $1-1\frac{1}{2}$  lin. longus, parce pubescens, obsolete sinuato-dentatus; corolla glabra; vexillum plus quam  $\frac{1}{2}$  poll. longus; ovarium adpresse pubescens; legumen deest.—*Martaban.*

136. *MILLETTIA LEUCANTHA*, nov. sp.

Arbor mediocris, novellis sericeo-pubescentibus glabrescentibus; folia impari-pinnata,  $\frac{1}{2}$ - $\frac{3}{4}$  ped. longa, juniora subtus sparse pubescentia, mox glabrescentia; stipellæ subulatæ, rigidæ, diutius persistentes; foliola ovata ad elliptica, ut plurimum 3-juga cum impari, longius petiolulato, breve et subabrupte acuminata, petiolulis c. 2 lin. longis puberulis glabrescentibus, 3-4 poll. longa, rigide chartacea, adulta glaberrima, integra, subtus sæpius pallida; flores fasciculati majusculi, candidi, pedicellis 2-3 lin. longis cinereo-velutinis; racemi solitarii, cinerascens pubescentes, erectiusculi, 2-4 poll. longi, in ramulis lateralibus terminales v. laterales; calyx canescenti-velutinus, c.  $2\frac{1}{2}$  lin. longus, dentibus 3 inferioribus distinctis, acutiusculis, 2 superioribus connatis lato-ovatis; corolla glabra; vexillum  $\frac{1}{2}$  poll. fere longum, integrum; ovarium adpresse sericeum; legumen lignosum, oblongum ad obovato-oblongum, acutum, glabrum, lenticillato-scabrum,  $1\frac{1}{2}$ -3 poll. longum, marginibus uti in *Pongamia obtusis*, 1-3 spermum; semina plana, brunnea.—*Prome, Pegu.*

137. *MILLETTIA OVALIFOLIA*, (*Pongamia ovalifolia*, WA. Prod. I. 262; Wight Je. t. 328.)

Arbor mediocris, glabra; folia impari-pinnata,  $\frac{1}{2}$ - $\frac{1}{2}$  ped. longa, glabra; foliola ovata ad elliptica et elliptico-ovata, petiolulis 1-2 lin. longis gracilibus, 3 (sec. WA. etiam 4-)juga cum impari, breve acuminata, apiculata v. obtusiuscula,  $\frac{1}{2}$ -1 poll. longa, chartacea, integra, subtus subglaucescentia, subtiliter reticulata; flores solitarii v. subfasciculati cyanei, parviusculi, pedicellis capillaribus 2-3 lin. longis; racemi graciles, glabri, 2-3 poll. longi, solitarii v. plures e ramulis novellis orti; calyx glaber, purpurascens, latior quam longus, c. 1 lin. longus, obsolete dentatus v. subtruncatus; corolla glabra, vexillum c.  $\frac{1}{2}$  poll. longum; ovarium parce adpresse pubescens; legumen lineari-oblongum, basin versus attenuatum, incurvato-acutum, planiusculum suturis obtusis, sublignosum, glabrum, pallidum, sparse verrucoso-lenticillatum, 2-3 poll. longum, ad medium 2-3-spermum.—*Prome.*



138. *MILLETTIA BRANDISIANA*, nov. sp.

Arbor mediocris, gemmis cupreo v. fulvo-pubescentibus, cæterum glabra; folia impari-pinnata,  $\frac{1}{2}$ -1 ped. longa, glabra; stipellæ subulatæ, diutius persistentes; foliola 7-10-juga cum impari, oblongo-lanceolata, petiolulis lin. longis puberulis, obtuse acuminata,  $1\frac{1}{2}$ -2 $\frac{1}{2}$  poll. longa, integra, juniora membranacea et subtus parce minuteque puberula, demum rigide sed tenuiter coriacea, glaberrima, subtus glaucescentia; flores cyanei, majusculi, pedicellis crassiusculis 2-3 lin. longis glabris suffulti, fasciculati, racemos 4-8 poll. longos glabros secus ramulos novellos distributos formantes; calyx purpureus, glaber, c. 2 lin. longus, tomentoso-fimbriatus, dentibus conspicuis, anteriore magis producto, posterioribus brevibus lateque connatis; corolla sericeo-pubescentia; vexillum  $\frac{1}{2}$  poll. fere longum; ovarium adpresse pubescens; legumen obovato-oblongum ad oblongum et oblongo-lanceolatum, basi plus minusve attenuatum, rigide coriaceum, valde planum, subabrupte incurvato-acuminatum, 2-3 poll. longum, suturis haud incrassatis, brunnescens, læve, 1-3-spermum.—*Pegu. M. pulchræ* (= *Mundulea pulchra*, Bth.) affinis.

139. *MILLETTIA TETRAPTERA*, nov. sp.

Arbor mediocris, novellis molliter pubescentibus; folia impari-pinnata,  $\frac{1}{2}$ - $\frac{2}{3}$  ped. longa, juniora molliter tomentella; foliola 3-(raro 2-1) juga cum impari, obovata ad elliptico-obovata, petiolulis crassis 1-2 lin. longis tomentosis, apice rotundata, subemarginata v. rarius apiculata, integra, novella membranacea et utrinque canescenti-tomentella, demum rigide chartacea et supra glabrescentia; flores fasciculati parviusculi, pallide lilacini, pedicellis 2-3 lin. longis dense pubescentibus; racemi 3-4 poll. longi, fulvo-v. gilvescenti-tomentosi secus ramulos foliatis novellos siti v. apicibus oppositifolii; calyx latior quam longus,  $1\frac{1}{2}$  lin. longus, tomentosus, obsolete sinuato-dentatus v. subtruncatus; corolla glabra; vexillum c.  $\frac{1}{2}$  poll. longum; ovarium adpresse pubescens; legumen subcuneato-oblongum, basi sterili attenuatum, lignosum, incurvato-acutum, 3-4 poll. longum, pallidum, læve, marginibus in alas irregulares lignosas sæpius undulatas angustas dilatatum et quasi tetrapterum, 1-2 spermum.—*Ara, Prome.*

140. *ERYTHRINA HOLOSERICEA*, nov. sp.

Arbor aculeato-armata, novellis furfuraceo-puberulis; folia iis *E. lithospermæ* conformia, 3-foliolata, petiolo 3-4 poll. longo, glabra; foliola plus minusve ovata, petiolulis 2-3 lin. longis, acuminata, 3-5 poll. longa, integra, chartacea v. membranacea, glabra; flores magni, coccinei? alis carinaque purpureis, subsessiles, 2-3-ni fasciculati, in racemo fulvo farinaceo-tomentoso collecti; calyx resupinatus, brevi-spathaceus brunneo-villosus, intus fulvescenti-sericeus; vexillum  $1\frac{1}{2}$  poll. fere longum, obovato-cuneatum, obtusum, minute-velutinum; alæ falcato-oblongæ, obtusæ, c.  $\frac{1}{2}$  poll. longæ; carina



c.  $\frac{3}{4}$  pollicaris, e petalis 2 oblique oblongis acutiusculis breve unguiculatis medio tantum connatis composita; stamina monadelphica; ovarium fulvotomentellum; legumen deest.—*Pegu*. Ex affinite *E. lithospermæ*, Miq., (= *E. Sumatrana*, Miq.) vix Bl. cujus planta e Mauritio in Hort. Bog. allata fuerat. (cf. Bl. Cat. Buitenz.)

141. *DALBERGIA CANA*, Grah. in Wall. Cat. 5859.

Arbor magna, novellis pubescentibus glabrescentibus; folia impari-pinnata; juniora parce pubescentia, mox glabrescentia, 1-2 ped. longa; foliola 7-9-juga, alterna, petiolulis 1-1 $\frac{1}{2}$  lin. longis glabrescentibus, oblonga ad ovato-v. lineari-oblonga, sæpius subinæqualia, breve et subabrupte acuminata, 2-2 $\frac{1}{2}$  poll. longa, integra, chartacea, adulta glabra v. subtus subpuberula; flores parvi, luride purpurei, pedicellis capillaribus puberulis 1-2 lin. longis suffulti, paniculam laxam puberulam breve pedunculatam axillarem v. sub-lateralem formantes; calyx atropurpureus, glaber v. subglaber, c. 2 lin. longus, dentibus obtusis; corolla glabra, 3 lin. fere longa, petalis longe unguiculatis; stamina 10, diadelphica; ovarium pilosum; legumen lineari-oblongum, planum, 3-1-spermum, obtusum, basi in stipitem brevem constrictum 3-4 poll. longum, fulvo-velutinum, circa semina indistincte venosum.—*Pegu Martaban, Tenasserim*.

142. *DALBERGIA GLOMERIFLORA*, nov. sp.

Arbor mediocris, decidua, novellis fulvescenti-tomentosis; folia juvenilia tomentosa glabrescentia, impari-pinnata; folia 3-4-juga, alterna, ovata ad elliptica et obovata, petiolulis parce pubescentibus 1-2 lin. longis, acuta, 2-2 $\frac{1}{2}$  poll. longa, integra, tenuiter coriacea, supra glabra, subtus parce puberula; flores parvi, albi, pedicellis brevissimis, v. subsessiles, in paniculas subcapitatas ramulos novellos villosos terminantes conglomerati; calyx c. 1 $\frac{1}{2}$  lin. longus, glaber, dentibus obtusis; corolla glabra, calyx paullulo longior, petalis brevissime unguiculatis; stamina 10, diadelphica; ovarium glabrum; legumen desideratur.—*Prome*.

*ARILLARIA*, gen. nov.

Calyx amplus, dentibus 2 superioribus paullo majoribus. Vexillum suborbiculare, alæ carinaque subconformes, securiformi-falcatae; petala omnia breve unguiculata et libera. Stamina 10, libera, inæqualia, omnia fertilia; antheræ versatiles. Ovarium brevi et crasse stipitatum, 2-ovulatum; stylus filiformis, revolutus, stigmatē laterali. Legumen oblongum, teres, carnosum-coriaceum, utrinque dehiscens. Semina 2 v. abortu ut plurimum solitaria, magna, oblonga, nigra, arillo carnosum miniato complete involutum. Cotyledones crassæ, radícula centrifugalis.—Arbor foliis impari-pinnatis, foliis oppositis stipellatis. Flores majusculi, albi, racemosi, in paniculas terminales collecti. Genus juxta *Ormosiam* ponendum, arillo insigne, unde nomen.



*Chænolobii* species ambæ a cl. Miquelio confectæ ad *Ormosiam coarctatam*, Jack, reducendæ.

143. *A. ROBUSTA*, (*Sophora robusta*, Roxb., Hort. Beng. 31; Wight Ic. t. 245; *Ormosia floribunda*, Wall. Cat. 5337.)

Arbor mediocris sempervirens, novellis fulvo-velutino-tomentosis; folia impari-pinnata, 1-1½ ped. longa, rachi fulvescenti-pubescente; stipellæ persistentes, c. 2 lin. longæ, lineari-subulatæ, pubescentes; foliola 4-5-juga, oblonga, petiolulis crassis 2 lin. longis pubescentibus, acuta v. apiculata, 3-4 poll. longa, integra, tenuiter coriacea, adulta supra glabra, subtus fulvescenti-puberula; flores majusculi, luride albi, pedicellis brevibus crassis tomentosis suffulti, racemosi, in paniculam terminalem robustam ferrugineo-v. fulvo-tomentosam collecti; bracteæ persistentes, lineares, tomentosæ, 2-3 lin. longæ; calyx amplus, 3 lin. fere longus, dense tomentosus; corolla glabra, c. 3 lin. longa; ovarium villosum; legumen oblongum v. elliptico-oblongum, basi in stipitem brevem pubescentem crassum contractum, acutum, carnosocoriaceum, luteum v. gilvum, parce pubescens v. subglabrum, mono-rarissime 2-spermum; semen magnum, oblongum, atterimum, lucidum, arillo miniato dein sanguineo carnosio complete involutum.—*Pegu, Tenasserim.*

144. *PTEROLOBIUM MACROPTERUM*, nov. sp. (*P. lacerans*, Miq. Fl. Ind. Bat. I. 106, non R. Br.)

Frutex magnus scandens, aculeis brevibus armatus, novellis parce pubescentibus; folia ½-¾ ped. longa, abrupte bipinnata, pinnis 7-8 v. pluribus rachibus aculeatis puberulis; foliola 7-9- v. pluri-juga, subsessilia, inæquali-oblonga v. elliptico-oblonga, ½-¾ poll. longa, apice rotundata v. retusa, membranacea, glabra, subtus pallida; flores albi, parvi, breviter pedicellati, racemos axillares solitarios (glabros?) efficientes; legumina samaroidea, basi seminifera plus quam ½ poll. longa, elliptico-oblonga, ala sesquipollicari, pollicem fere lata, semi-oblonga, apice rotundata, sutura interiori recta, nec arcuata.—*Pegu, Martaban, Tenasserim.*

Species Indicæ 3 mihi notæ, nempe, *P. microphyllum*, Miq. (Hb. Maingay No. 535) racemis in paniculas terminales amplas dispositis, et *P. lacerans*, R. Br. (Wight Icon. t. 196), cum specie nova supra descripta racemis axillaribus solitariis conjunctum, leguminibus autem valde discrepans.

145. *CASSIA RENIGERA*, Wall. Cat. 5307; Bth. in Linn. Trans. XXVII. 518.

Arbor mediocris, novellis molliter pubescentibus; folia abrupte pinnata, ½-1 ped. longa, molliter pubescentia; stipulæ magnæ, lunato-reniformes, deciduæ; foliola 8-20-juga, petiolulis brevissimis, v. subsessilia, elliptico-oblonga ad oblonga, obtusa v. retusa cum mucrone minuto, ½-1½ poll. longa,



membranacea, molli-pubescentia; flores speciosi, purpurei, pedicellis 1-1½ pollicaribus pubescentibus, in racemos solitarios v. geminatos supra foliorum delapsorum cicatricibus ortos pubescentes brevissimos dense bracteatos collecti; bracteae cordato-ovatae, longe acuminatae, pubescentes; calyx breve denseque pubescens; petala oblonga, pollicem fere longa, obtusiuscula; ovarium filamentaque glabra; filamenta longiores medio incrassata; legumen cylindricum, 1-2 ped. longum, indehiscens, glabrum.—*Ava, Prome.*

146. *BAUHINIA ROSEA*, nov. sp.

Frutex scandens, novellis fulvo-puberulis; folia cordato-rotundata, usque ad ½ partem biloba, lobis rotundatis cum aristâ brevi in eorum sinu auctis, petiolo 1½-2 pollicari puberulo, 3-5 poll. longa et lata, integra, chartacea, juniora supra fugaci-pubera mox glabra, subtus fulvescenti puberula; flores parviusculi, rosei, pedicellis 1½-2 poll. longis gracilibus adpresse puberulis, racemum terminalem bracteatum corymbiformem fulvo-pubescentem formantes; bracteae lineari-lanceolatae, acuminatae, c. 4 lin. longae; calyx adpresse fulvo-puberulus, tubo brevi, lobis in alabastro tereti-ovoideis, dein liberis et reflexis 4 lin. longis lineari-lanceolatis; petala longe unguiculata, obovato-linearia, undulata, utrinque parce adpresse pubescentia, c. ¾ poll. longa; ovarium cum stylo crasso brevi (ovario breviori) fulvo-villosum; legumen deest.—*Martaban.* (Dr. Brandis.) *A. B. Vahlîi* inter alia differt stylo et floribus minoribus.

147. *BAUHINIA ORNATA*, nov. sp.

Frutex alte scandens cirrhiferus, novellis ferrugineo-pubescentibus; folia cordato-ovata ad cordato-rotundata, petiolo 1½-3 poll. longo in juventute ferrugineo-pubescente suffulta, usque ad ½ v. ⅔ partem biloba, lobis obtusiusculis v. obtusiuscule acuminatis et in sinu aristatis, 4-7 poll. longa et lata, integra, chartacea, juniora subtus parce adpresse ferrugineo-pubescentia, mox glabrescentia, palmatim 11-15-nervia; flores parvi, albi, pedicellis gracilibus 1-1½ pollicaribus, ferrugineo-pubescentibus, apice pedunculi longioris v. brevioris glabrescentis in racemum corymbiformem multiflorum bracteatum fulvo-pubescentem lateralem v. terminalem congregati; bracteae lineari-lanceolatae, pubescentes, c. 2 lin. longae; calyx in alabastro pyriformis, adpresse pubescens, lobis ovatis c. 3 lin. longis reflexis; petala obovato-oblonga, extus parce pubescentia, subundulata, c. 4 lin. longa; ovarium fulvo-villosum, stylo longo gracilique glabro; legumen non repertum.—*Pegu.*

148. *BAUHINIA INVOLUCELLATA*, nov. sp.

Frutex scandens, novellis parce puberulis; folia cordato-ovata, petiolo glabro 1½-2 poll. longo, usque ad ½-¾ partem biloba, lobis obtusiuscule acuminatis in sinu aristatis, 3-4 poll. longa, integra, tenuiter chartacea, glabra, palmatim 9-11-nervia; flores majusculi, pallide rosei, pedicellis 2-2½ polli-





caribus puberulis glabrescentibus infra apice bibracteolatis suffulti, racemum longiorem v. breviorē laxum terminalem puberulum glabrescentem formantes; bracteæ minutæ, indistinctæ; bracteolæ sub calyce elliptico-oblongæ, obtusiusculæ,  $\frac{1}{2}$  poll. longæ, intus velutinæ, quasi involucrum bifoliatum formantes; calyx velutinus, tubo sulcato-tubulari, c. 3 lin. longus v. longior, lobis in alabastro oblongo-ovato lanceolatis acuminatis  $\frac{1}{2}$  poll. longis dein liberis et reflexis; petala  $1\frac{1}{2}$  poll. fere longa, lamina ovato-oblonga, obtusa, unguis longitudine; ovarium læve, stylo longiusculo sed crasso; stamina fertilia 3; legumen desideratur.—*Martaban* (Dr. Brandis).

149. *BAUHINIA MONANDRA*, nov. sp.

Frutex? novellis puberulis; folia parva, rotundato-ovalia, basi truncata, petiolo  $\frac{1}{2}$ -1 pollicari breve pubescente, usque ad  $\frac{1}{2}$  partem biloba, lobis rotundatis in sinu aristatis,  $1-1\frac{1}{2}$  poll. longa, integra, chartacea, supra glabra, subtus præsertim secus nervos breve pubescentia, palmatim 11-nervia; flores majusculi, albi? petalo inferiore maculato, pedicellis  $1-1\frac{1}{4}$  pollic. longis dense puberulis, racemos breves terminales pubescentes formantes; bracteæ parvæ, subulatæ; calyx extus tomentellus, in alabastro fusiformis, spathaceus; petala obovato-cuneata, c.  $1\frac{1}{4}$  poll. longa, glabra, undulata, stamen perfectum unicum tantum, cætera omnia rudimentaria; ovarium stipitatum fulvo-villosum, suturis lævibus, stylo gracili ovarii ipsius duplo longiore terminatum; legumen deest.—*Burma, Martaban?* (Dr. Brandis). Ex affinitate *B. tomentosæ*, cum *B. brachycarpa*, Wall., ultro comparanda.

150. *AFZELIA RETUSA*, nov. sp.

Arbuscula glaberrima; folia abrupte pinnata, rachi brevissima glabra; foliola uni- v. bijuga, plus minusve ovalia, sub-obliqua, brevissime petiolulata,  $1\frac{1}{2}$ -2 poll. longa, integra, chartacea, emarginata, glabra; flores parviusculi, albidi pedicellis c. 4 lin. longis glabris, racemos breves simplices glabros in ramulis terminales efficientes; bracteolæ sub calyce 2 parvæ, concavo-cymbiformes, persistentes; calyx lævis, tubo c. 4-lin. longo, lobis obovato-oblongis æqui-longis; legumen 3-4 poll. longum,  $1-1\frac{1}{4}$  poll. latum tenuiter coriaceum, oblongum, secus margines incrassatos subcurvum, glabrum.—*Andamans.*

151. *PARKIA LEIOPHYLLA*, nov. sp.

Arbor vasta, 80-120 pedalis, novellis pubescentibus; folia abrupte bipinnata, 1-2 pedalia, pinnis c. 20 v. pluribus suboppositis, rachibus breve fulvo-pubescentibus; foliola c. 30-40, sessilia, opposita, lineari-oblonga, subfalcata, basi oblique auriculata,  $\frac{1}{2}$  poll. longa, c. 2 lin. lata, oblique acuta, tenuiter coriacea, glaberrima, unicostata cum nervo solitario basilari laterali, penninervia; flores parvi, flavescentes, in receptaculo irregulari-globoso basi



in stipitem pollicem fere longo contracto sessiles et capitulum densiflorum clavatum longe-pedunculatum formantes; pedunculi  $1-1\frac{1}{2}$  pedales, glabri, racemosi, terminales; calyx 4 lin. fere longus, tubo glabro, lobis rotundatis extus dense fulvo-tomentosis; legumen  $1-1\frac{1}{2}$  ped. longum, lineare, in stipitem  $\frac{1}{2}-\frac{3}{4}$  pedalem attenuatum, apice rotundatum, glabrum et subvernicosum, nigrum, inter semina numerosa torosum.—*Pegu.*

152. *PARKIA INSIGNIS*, nov. sp.

Arbor vasta, 80-100-pedalis, novellis fulvo-pubescentibus; folia abrupte bipinnata, 1-2-pedales, pinnis c. 8 suboppositis, rachibus fulvo-v. ferrugineo-tomentosis; foliola 20-25, juga, subopposita, subfalcata, oblonga, cum basi inæquali sub-auriculata sessilia, apice rotundata, 1 poll. longa,  $\frac{1}{3}$  poll. lata, integra, coriacea supra nervis exceptis glabra, subtus pubescentia, penninervia, nervis arcuatim anastomozantibus; flores parvi, lutei in receptaculo clavato-orbiculari basi in stipitem pollicarem attenuato sessiles et capitulum clavato-pyriformem longe pedunculatum efformantes; pedunculi pedales, plures ex apice ramorum orientes; calyx c. 4 lin. longus, tubo glabro v. subglabro, lobis obovato-cuneatis adpresse fulvo-pubescentibus; legumina non vidi.—*Martaban.*

153. *ALBIZZIA (Pithecolobium) GLOMERIFLORA*, nov. sp.

Frutex 2-5-pedalis, novellis puberulis, ramulis subangularibus v. teretibus; folia abrupte bipinnata, pinnis unijugis, petiolus  $1-1\frac{1}{2}$  pollicaris, rachibus vix angularibus præsertim junioribus puberulis; foliola 3-raro 2-juga, petiolis brevissimis puberulis, oblique oblongo-lanceolata ad subrhomboideo-lanceolata breve mucronato-acuminata, 1-2 poll. longa, tenuiter et rigide coriacea, adulta glabra v. subglabra, v. secus costam puberula, subtus glaucescentia et secus nervos pubescentia; flores parvi, virescenti-albi, sessiles, in capitula pisi magnitudinis pedunculis gracillimis  $\frac{1}{2}$ -1 pollicaribus puberulis instructa congregati et in racemos graciles puberulos axillares dein sæpius paniculam terminalem foliatam simulantes dispositi; calyx vix  $\frac{1}{2}$  lin. longus, pubescens; corolla usque ad calycis limbum lobata, extus pubescens, c.  $1\frac{1}{2}$  lin. longa; legumina non adsunt.—*Martaban.*

*RUBIACEÆ.*

154. *PAEDERIA CALYCINA*, nov. sp.

Herba volubilis, novellis puberulis; folia cordato-ovata ad cordato-lanceolata, petiolo  $1-1\frac{1}{2}$  pollicari puberulo suffulta, basi sinuato-cordata, acuminata, 2-3 pollicaria, integra, membranacea, utrinque præsertim subtus parce hispidula; flores ... superiores pedicellati, lateralibus sessilibus v. subsessilibus, in cymas dichotomas secundas parvas parce hirsutas disgesti, et paniculas thyrsoides brachiatas hirsutulas axillares et terminales efformantes;



calyx indistincte puberulus, tubo c.  $\frac{1}{2}$  lin. longo v. longiore, lobis fere duplo longioribus, lanceolatis, subfoliaceis; corolla ...; capsulae ovoideae, c. 4 lin. longae, compressae, brunneae et lucidae, calycis limbo conspicuo coronatae; semina capsulis conformia, alâ nigrescenti c.  $\frac{1}{2}$  lin. latâ circumdata.—*Tenasserim* (Wall. Cat. 6247 E).

Rubiacearum genera 44 in regno Burmanico occurrentia mihi cognita sunt, quorum conspectum hic addo:—

Trib. I. STELLATAE. Calyx ovario omnino adnatus, v. limbo 4-6-fido. Corollae lobi valvati, ovarium 2-loculare, ovulis in loculis solitariis erectis, adscendentibus v. raro pendulis. Drupa indehiscens, sicca v. succulenta. Semina exalata et libera, v. raro membrana alatim-expansa circumdata.—Stipulae utplurimum in folia stipulacea transformata et foliis conformes v. subconformes, hinc cum foliis verticillata, raro folia normaliter opposita.

§ 1. *Eustellatae*. Semina magis minusve globosa, libera, erecta v. adscendentia. Stipulae foliaceae evolutae.

1. *Rubia*, L. Flores pentameri. Drupa succulenta. Herbæ annuæ v. perennes, erectæ v. scandentes.
2. *Gulium*, L. Flores 4-meri. Drupa utplurimum didyma, v. globosa, exsucca. Herbæ perennes v. annuæ, erectæ v. prostratae.

Trib. II. COFFEEACEÆ. Drupa magis minusve carnosa v. succulenta, rarius bacca, 1-pluri-locularis, ovulis 1 v. pluribus in singulo loculo. Semina haud alata v. appendiculata. Stipulae interpetiolares veræ connatae v. liberae.

Subtrib. 1. *Coffeæ*. Ovarium 2-loculare, ovulis in loculis solitariis erectis v. medio affixis. Bacca e pyrenis 2 v. pluribus (raro abortu solitariis) tenuicrustaceis v. membranaceis monospermis composita.

§ Ovarium 2-loculare.

\* Corolla valvata. Albumen vulgo carnosum (*Psychotricæ*).

3. *Cephaelis* L. (incl. *Geophila*, Don). Corolla infundibuliformis tubo longo. Calyx 4- v. 5-dentatus v.-lobatus. Flores capitati v. solitarii, axillares. Suffrutices v. herbæ perennes repentes.
4. *Hydnophytum*, Jack. Calycis limbus integer. Corollae tubus brevis. Flores glomerati sessiles. Frutices epiphyti truncis tuberosis.
5. *Psychotria*, L. Corollae tubus brevis, fauce barbata. Pyrenæ facie interna planæ et integræ. Flores cymosi v. cymosopaniculati. Frutices, raro suffrutices, raro scandentes.
6. *Chasalia*, Comm. Corollae tubus elongatus, fauce nudus. Pyrenæ facie interna secus placentam centram excavatæ. Frutices v. suffrutices; inflorescentia precedentis.



\* \* Corollæ lobi imbricati v. contorti. Albumen vulgo osseum. (*Ixoreæ*.)

7. *Ixora*, L. Corolla hypocraterimorpha, limbo 4-5-partito. Ovula medio affixa. Flores corymbosi v. paniculati. Stipulæ connatæ.
8. *Coffea*, L. Corolla infundibuliformis, glabra, limbo 4-7-partito. Baccæ 2- raro 1-spermæ, semina pyrenis chartaceis inclusa. Flores terminales et axillares. Stipulæ liberæ. (Hic *Prismatis*, Thw.).
9. *Serissa*, Comm. (incl. *Saprosma*, Bl., *Dysodidendron*, Gardn.). Corolla infundibuliformis, velutina, sæpius unacum calyce subobliqua. Ovula erecta, basilaria. Baccæ 1- rarius 2-spermæ. Flores terminales et axillares. Stipulæ liberæ.  
§ Ovarium 4-9-loculare. (*Lasiantheæ*).
10. *Lasianthus*, Jack. Calyx magis minusve dentatus. Styli et ovarii loculi 4-9. Frutices erecti; flores glomerati v. cymosi, axillares.
11. *Gynochthodes*, Bl. Calycis limbus truncatus. Stylus 2-fidus. Ovarium 4-loculare. Frutices scandentes; flores glomerati, axillares.

Subtrib. 2. VANGUERIEÆ. Ovarium 1- $\infty$ -loculare, loculi 1-v. raro (in *Polyphragmone*)  $\infty$ -ovulati, ovulis lateraliter affixis v. a medio v. ex apice loculorum pendula. Pyrenæ duræ et osseæ, v. in putamen durum connatæ, v. liberæ et laxiuscule compactæ. Albumen vulgo carnosum.

§ 1. *Euvanguerieæ*. Corolla valvata. Ovula lateraliter v. sub apice affixa.

12. *Vangueria*, Comm. Stigma discoideum. Ovarium utplurimum 5-loculare.
13. *Canthium*, Lamk. Ovarium 2-loculare. Drupæ didymæ, v. abortu passim sub-1-loculares. (Hic *Polyozus*, Miq., non Lour.)

§ 2. *Guettardeæ*. Corolla imbricata.

\* Ovarium 2-loculare, ovulis in loculis singulis 2 placentæ centrali affixa. Drupæ elongatione placentæ spurie 4-loculares, loculis spuriiis 1-spermis. Pyrenæ in putamen connatæ.

14. *Scyphiphora*, Gærtn. Styli 2. Drupæ angulato-sulcatæ. Ovulum in loculo superiori spurio erectum, alterum in inferiori pendulum.

\* \* Ovarium 4- $\infty$ -loculare, ovulis in loculis solitariis pendulis. Pyrenæ in putamen  $\infty$ -loculare connatæ, loculis monospermis.



15. *Guettarda*, L. Stigma crassum, simplex. Drupæ globosæ, majusculæ.  
\* \* \* Ovarium pluri-loculare, ovulis in loculis pluribus v. numerosis, secus placentas centrales superposita. Drupæ baccatæ, 5-10-loculares, loculi pyrenas spurias (seminibus testa crustaceo-induratâ?) plurimas continentes.
16. *Polyphragmon*, Desf. Stigmata tot quot ovarii loculi.
- Subtrib. 3. *RANDIÆ*. Ovarium v. 1-loculare placentis parietalibus, v. sæpius 2- $\infty$ -loculare, loculis  $\infty$ -ovulatis. Semina libera, nec pyrenis inclusa.
- § 1. *Gardeniæ*. Ovarium 1-loculare, placentis 4-5 parietalibus. Corolla imbricata.
17. *Gardenia*, L. Flores sæpius conspicui. Stigma integrum, sulcato-tortuosum. Bacca magna,  $\infty$ -sperma, seminibus in pulpa nidulantibus.
- § 2. *Eurandiæ*. Ovarium 2-loculare. Corolla imbricata.  
\* Placenta simplex.
18. *Randia*, L. Stigma bilobum; stylus fusiformi-incrassatus. Baccæ magnæ; semina in pulpo nidulantia. Arbores v. frutices erecti.
19. *Griffithia*, W.A. Stigma bilobum; stylus æqualis, haud incrassatus. Baccæ parvæ, haud pulposæ. Frutices scandentes sæpius armati.
20. *Webera*, Schreb. Stigma simplex; stylus æqualis, filiformis. Baccæ parvæ, epulposæ. Arbores v. frutices erecti, inermes.
21. *Diplospora*, DC. Stylus 2-fidus. Baccæ majusculæ, epulposæ. Semina in loculis biseriata (an semper?). Arbores v. frutices erecti inermes. (An potius cum sequenti conjungendum?)
22. *Hypobathrum*, Bl. Stylus 2-lobus. Baccæ parvæ, v. pedicellatæ, epulposæ. Semina in loculis uniseriata. Frutices erecti. (Hic Hyptianthera, W.A., Petunga, DC. et probabiliter Scyphostachys, Thw., et Pristidia, Thw.).  
\* \* Placentæ 2-fidæ. Stigma 2-5-lobum.
23. *Mussænda*, L. Unus alterve calycis lorum florum exteriorum foliaceo-appendiculatus. Antherarum connectivum haud mucronatum.
24. *Acranthera*, Arn. Calycis dentes haud appendiculati, conformes. Antherarum connectivum mucronato-productum.
- § 3. *Urophyllæ*. Ovarium vulgo 5-6, raro 2-3-loculare.  
Corolla valvata.



25. *Adenosacme*, Wall. Calyx 5-4-fidus. Corollæ faux nuda. Cymæ v. corymbi terminales v. subterminales, raro laterales.
26. *Urophyllum*, Jack. Calyx integer v. minute denticulatus. Corollæ faux barbata. Florum glomeruli v. cymæ axillares.

Trib. III. CINCHONACEÆ. Capsula exsucca, vario modo dehiscens v. rarissime indehiscens [vel si carnescens uti in *Sarcocephalo*, v. baccata (uti in *Morindeis*) semina semper alata v. appendiculata]. Ovarium 2- $\infty$ -loculare, loculis 1- $\infty$ -ovulatis. Semina alata, appendiculata, v. nuda. Stipulæ interpetiolares veræ.

Subtrib. 1. Ovarii loculi 2-4,  $\infty$ -v. (in *Cephalantho* ? 1-) ovulati. Capsulæ vario modo dehiscentes. Semina plus minusve alata v. appendiculata.

•§ 1. *Morindeæ*. Flores dense capitati. Ovarium 2-v.  $\infty$ -loculare, ovula solitaria et erecta v. numerosa et pendula. Baccæ v. drupæ baccatæ ut plurimum in receptaculo incrassato congregatæ et sæpius in syncarpium connatæ.

\* Ovula et semina in loculis numerosa, imbricato-pendula.

27. *Psilobium*, Jack. Baccæ elongatæ, subfolliculares, discretæ. Arbores v. frutices.

\* \* Ovula et semina in loculis solitaria, erecta.

28. *Morinda*, L. Baccæ sæpius in syncarpium connatæ. Arbores v. frutices, nonnunquam scandentes.

§ 2. *Naucleæ*. Flores in receptaculo incrassato capitati. Capsulæ a basi v. alius modi dehiscentes, siccæ, v. raro (in *Cephalantho*) baccatæ.

\* Capsulæ baccatæ, a basi dehiscentes.

29. *Sarcocephalus*, Afz. Capsulæ baccatæ 2-loculares, v. loculis 2 superpositis sterilibus auctæ, in syncarpium connatæ.

\* \* Capsulæ siccæ, loculicide v. septicide in coccos 2- $\infty$ -v. raro monospermos dehiscentes.

O. Capsulæ in coccos 2- $\infty$ -spermos dehiscentes. Corollæ et calycis lobi dentibus interjectis carentes.

30. *Nauclea*, L. Flores bracteolis carentes. Arbores, raro frutices erecti.

31. *Stephegyne*, Korth. Flores bracteolis angulari-clavatis circumdati. Arbores.

OO. Capsulæ 2-4-loculares, loculis 1-ovulatis. Calycis et corollæ lobi in sinibus denticulati.



32. *Cephalanthus*, L. Flores 4-meri, bracteolis lineari-clavatis circumdati. Frutices v. arbusculæ.

OOO. Capsulæ 2-loculares, rimis longitudinalibus dehiscentes. Scandentes.

33. *Uncaria*, Schreb. Flores sessiles v. pedicellati, bracteolis destituti.

§ 3. Eucinchonæ. Flores paniculati v. corymbosi, haud capitati. Capsulæ 2-loculares, septicide in valvas 2 v. apice 4-valvatim dehiscentes.

\* Capsulæ in valvas 2 lignosas septicide dehiscentes.

34. *Hymenodyction*, Wall. Arbores; inflorescentiæ foliis floralibus discoloribus gaudentes.

\* \* Capsulæ apice 4-valvatim dehiscentes.

35. *Hymenopogon*, Wall. Frutices epiphytici; inflorescentia foliis floralibus discoloribus gaudens.

- Subtrib. 2. SPERMATOCOEÆ. Ovarii loculi 2-4, loculis 1-v. pluri-ovulatis. Capsulæ vario modo dehiscentes v. in cocos 2-4 separantes, raro indehiscentes. Semina nunquam alata v. appendiculata, numerosa v. solitaria.

§ 1. Hedyotideæ. Ovula et semina in loculis pluria v. numerosa, lateraliter affixa.

O Stipulæ connatæ v. liberæ, haud vaginantes v. setaceo-fimbriatæ. (Rondeletieæ).

\* Stigma 2-fidum v. -lobum. Corolla imbricata v. tortuosa. Antherarum loculi mutici.

36. *Wendlandia*, Bartl. Corolla tubulosa, tortuosa. Capsulæ apice bivalvatim dehiscentes. Arbores v. frutices. (Hic *Greenia*, WA.)

37. *Spiradiclis*, Bl. Corollæ tubus brevis. Capsulæ in valvas 2 iterato bivalvatim separatas marginibus inflexas dehiscentes. Herbæ annuæ, erectæ.

38. *Ophiorrhiza*, L. Corolla infundibuliformis v. tubulosa. Placenta erecta, libera. Capsulæ compressæ, divaricato-2-lobæ, apice rima loculide-dehiscentes. Herbæ annuæ v. perennes.

\* \* \* Stigma capitatum. Corolla valvata. Antherarum loculi in appendicem sterilem setaceum prolongati.

39. *Argostema*, Wall. Corolla subrotata, limbo 3-7-fido. Capsulæ apice valvis 4 dehiscentes. Herbæ Melastomacearum habitu.

OO Stipulæ petiolis adnatæ et basi vaginantes, setaceo-ciliatæ. (*Euhedyotideæ*.)

40. *Dentella*, Forst. Flores 5-meri, petala 2- v. 3-dentata. Capsulæ vix dehiscentes.



41. *Hedyotis*, L. Flores 4-meri; petala integra. Capsulæ loculicide v. septicide dehiscentes, v. in cocos 2 v. 4 pleiospermos separantes.
- Subg. 1. *Oldenlandia*. Capsulæ magis minusve hemisphericæ et obsolete 2-lobæ, loculicide dehiscentes.
- Subg. 2. *Dimetia*. Capsulæ apice rima hiantē brevi septicide dehiscentes, magis minusve truncato-hemisphericæ et obsolete 2-lobæ.
- Subg. 3. *Metabolos*. Capsulæ septicide dehiscentes v. subdehiscentes, hemisphericæ, apice magis minusve truncatæ, sæpius obsolete 2-lobæ.
- Subg. 4. *Scleromitron* (Allæomorphia, Thw.). Capsulæ in cocos 2, v. eorum divisione, 4 indehiscentes pleiospermos separantes, calycis lobis convergentibus coronatæ. Calyx magis minusve ovoideus v. obovatus. An revera genus proprium? Spermacocis characteribus gaudens sed ovulis et seminibus plurimis discrepans et inter Hedyotidem et Spermacocem quasi intermedium.
- § 2. *Euspermacocæ*. Ovula et semina in loculis erecta et solitaria. Capsulæ dehiscentes, v. in cocos separantes, v. raro indehiscentes.
42. *Spermacoce*, L. (incl. *Hydrophylax*, L. f.?) Ovula medio s. sub medio loculorum affixa. Capsulæ ab apice septicide dehiscentes. Herbæ annuæ v. perennes.
43. *Knoxia*, L. Ovula apice v. sub apice loculorum affixa. Capsulæ a basi in cocos 2 caducos separantes, axim persistentem setaceum relinquentes. Herbæ annuæ v. perennes.
- § 3. *Pædericæ*. Ovula et semina compressa in loculis pendula et solitaria. Capsulæ drupæformes, crustacæ, v. pergamacæ, vix dehiscentes, cocos 2 tenui-membranaceos alatim expansos includentes. An potius inter *Colfeaceas* recipiendæ?
44. *Pæderia*, L. Corolla valvata. Folia opposita v. 3-4-na verticillata. Volubiles.

### COMBRETACEÆ.

155. *TERMINALIA TOMENTELLA*, nov. sp.

Arbor magna, novellis adpresse cupreo-pubescentibus; folia 5-8 poll. longa, petiolo 8-12 lin. longo apice biglanduloso suffulta, basi inæquali decurrentia, ovata ad ovato-oblonga, acuta v. subacuta, coriacea, integra, junio-





ra subtus dense, adulta parce cupreo-pubescentia v. omnino glabrescentia; flores parvi, sessiles, spicati, paniculam parvam ferrugineo- v. fulvo-tomentellam componentes; bracteolæ subulatæ, floribus longiores, deciduæ; calycis lobi triangulares, acuti, extus glabri, intus unacum glandulis hypogynis albo-lanuginosi; tubus ovatus, teres, glaberrimus; drupæ poll. vix longæ, ovatæ, obsolete 5-gonæ v. teretes, lutescentes, læves.—*Pegu, Martaban, Tenasserim. T. Chebulæ*, Retz., quam maxime affinis, calycis tubo lævissimo, indumento copiosiore et fructibus minoribus distat.

### BEGONIACEÆ.

#### 156. BEGONIA NIVEA, Parish MS.

Herbula succulenta radice tuberosa?, subglabra; folia radicalia 1 v. 2, obovato-oblonga, apice irregulariter truncato-angulata, basi in petiolum brevissimum crassum glabrum constricta, dentata et parce setuloso-ciliata, palmatim 5-nervia, 2-3 poll. longa, membranacea, supra setulis brevibus adspersa, subtus glabra; scapus radicalis, glaberrimus, folio duplo longior, apice bibracteato, flores 2 v. 3 majusculos candidos gerens; bracteæ 2 ovales v. ovali-oblongæ, acutæ, foliaceæ, c. 2-3-lin. longæ; flores feminei pedicellis brevioribus, masculi longioribus 1-1½ poll. longis glabris, instructi; sepala et petala obovato-oblonga ad lato-ovalia, c. 5 lin. longa, in femineis aliquanto breviora; stamina monadelphæ; antheræ obovato-oblongæ, obtusæ; styli 2, basi v. ad medium fere connati, uno 3- altero 2-bifido et glandulis stigmaticis stipitatis dense obducti; capsulæ immaturæ glabræ, oblongo-ovatæ, inæquali-3-alatæ, alis triangularibus et acute productis, medio majore.—*Tenasserim* (Revd. Parish).

#### 157. BEGONIA SUBPERFOLIATA, Parish MS.

Herbula erecta, succulenta, radice tuberosa? scapigera; folia radicalia solitaria, petiolo 1½ usque ad 3½ poll. longo subvelutino-suffulta, ovata ad ovato-oblonga, vix inæqualia, basi rotundata leviter peltata, obtusiuscule acuminata, grosse crenato-dentata, 2-3 poll. longa, membranacea, utrinque pulcherrime concavo-punctata (in vivo probabiliter papilloso-holosericea), subtus ut plurimum subpurpurascentia; scapus radicalis v. subradicalis, glaber, folio brevior, dichotomo-cymosus, pauciflorus; bracteæ virides, elliptico-lanceolatæ, acutæ, c. lin. longæ, papillosæ; flores parvi, rosei, pedicellis capillaribus glabris; sepala ovalia, obtusa, 2-3 lin. longa, extus conspicue venosa; stamina monadelphæ; antheræ breves, obovatæ; styli 3, alte connati, 2-fidi; capsulæ c. 3 lin. longæ, obovatæ, glabræ, 3-loculares, 3-alatæ, alis capsulâ ipsâ latioribus semi-obcordatis; placentæ 2-fidæ.—*Tenasserim* (Revd. Parish).

#### 158. BEGONIA VELUTINA, Parish MS.

Herbula simplex, scapifera, unifoliata, radice parva tuberosa; folium petiolo 1-3 poll. longo nonnunquam parce pubescente suffultum, cordato-ova-



tum ad cordato-rotundatum, palmatim 7-nerve, obtusum, v. breve et obtusiuscule acuminatum, irregulariter et breve lobatum, dentatum et ciliatum, c. 1-2 poll. longum et latum, membranaceum, supra papillosum et pilis minutis brevibus adpersum, subtus secus nervos adpresse pubescens; scapi radicales, folio vulgo sublongiores, glabri, pauciflori; bracteae minutae, lineares; flores majusculi, rosei? sepala 4 lin. fere longa, lato-ovalia, obtusa; petala minuta, lineari-lanceolata, acuminata; perianthii feminei lobi dimidio breviores; stamina numerosa, libera; antherae obovatae, breves, truncatae; stigmata 3, libera, apice dilatato in lobos stigmatiferos 2 tortuosos divergentia; capsulae immaturae obovatae, glabrae, 3-loculares, anguste 3-alatae alis apice truncatis; placentae bifidae.—*Tenasserim* (Revd. Parish, Dr. Stoliczka).

*Begonia* species Burmanicae sequenti modo distingui possunt:—

Subg. I. *CASPAREA*. DC. Capsulae carnosae et bacciformes, secus angulos v. alas crassas latas dehiscentes.

Herba robusta glabriuscula ramosa; styli 4; capsulae 4-loculares et 4-angulares, angulis in appendices cornutos productis, ..... *B. Roxburghii*.

Subg. II. *Begonia*, DC. Capsulae siccae, lineam semicirculari secus lateres alarum v. angulorum dehiscentes.

\* Styli 2, bifidi v. vario modo dilatati v. ramosi; capsulae 2-loculares; placentae bifidae.

† Stamina libera. Capsulae inaequali-3-alatae, alis 2 anterioribus saepius ad costam membranaceam reductis.

Herba robusta, ramosa, molliter paleaceo-pilosa; folia longipetiolata, lobata, ..... *B. laciniata*.

Uti prior, sed gracilior et glaberrima; capsula glabra, ... *B. megaptera*,

Herba robusta subsimplex, molliter paleaceo-pilosa; folia longipetiolata, non lobata; capsula paleaceo-pilosa, ..... *B. barbata*.\*

†† Stamina monadelphae. Maris perianthium 5-lobatum, femineum 5-6-lobatum; capsulae inaequali-3-alatae.

|| Folia et inflorescentia radicalis, illa in petiolum 2-3 lin. longum contracta, ciliata, supra hispida; flores poll. fere in diametro, candidi, ... *B. nivea*.

||| Inflorescentia axillaris v. e basi folii orta, v. prolifica e gemma axillari.

O Non prolifica. Folia alterna v. verticillata, raro numero ad solitarium reducta. Flores parvi, albi.

Glabra; folia alterna, petioli 1-2 lin. longi, ..... *B. procrdifolia*.

Glabra; folia verticillata, longius petiolata, ..... *B. verticillata*.

Caules petiolique pubescentes; inflorescentia glabra; folia alterna, longepetiolata, supra sparse hirtula, ..... *B. Martabanica*.

\* Planta Burmanica, floribus roseis gaudens, ab Assamica paullo differt capsulis majoribus crassioribus magis pilosis.



OO. Prolifica, folio solitario radicali v. foliis paucis alternatis. Flores parvi, albi.

Magis minusve stellato-velutina; inflorescentia glabra; folia alterna v. raro solitaria, ..... *B. sinuata*.

Glabra; folium solitarium, pedunculis 2 v. pluribus ex ipsius basi ortis, ..... *B. prolifera*.

Caules &c., et inflorescentia conspicue bracteata, palcaceo-pilosa, sæpius pilis glandulosis intermixtis, ..... *B. palcacea*.

† † † Stamina monadelpha; perianthium utriusque sexus 2-sepalum, apetalum.

Herba tenerrima; folia alterna, supra minute et sparse pilosa; flores parvi, ..... *B. flaccidissima*.

\* \* Styli 3, liberi v. connati; capsulæ 3-loculares et 3-alatæ.

† Placentæ integræ.

Glabra; inflorescentia radicalis v. subradicalis; folia radicalia profunde lobata; perianthium 2-sepalum, apetalum, ..... *B. Brandisiana*.

† † Placentæ bifidæ.

O Herbæ caulescentes foliis caulinis alternatis.

Partes omnes et inflorescentia glabra; capsulæ 3 lin. longæ, alis apice truncatis; stamina monadelpha, ..... *B. parvuliflora*.

Folia supra sparse setulosa et nitida, cæteris præcedenti assimilis, at capsulæ  $\frac{1}{2}$  poll. longæ; stamina libera, antheræ mucronulatæ; styli liberi, ..... *B. modestiflora*.

Uti præcedens, sed folia opaca et pilosiora; stamina monadelpha, antheræ connectivo truncato lato terminatæ; styli ad medium connati, *B. scutata*.

Folia minute et sparse pilosula; inflorescentia glanduloso-puberula; stamina monadelpha, capsulæ alæ semisagittatæ basi in lobos obtusos productæ, ..... *B. surculigera*.

OO. Herbæ scapigeræ, foliis et inflorescentiis radicalibus et vulgo solitariis.

Folia longissime petiolata, basi peltata, papilloso-punctata et glabra, ..... *B. subperfoliata*.

Folia longissime petiolata, cordata, nec peltata, supra papillosa et minute pilosula; stamina libera, ..... *B. velutina*.

### ERICACEÆ.

159. VACCINIUM VERTICILLATUM, Kurz, non Wight. (*Agapetes verticillata*, D. Don, Gen. Syst. III. 862.; DC. Prod. VII. 554).

Frutex epiphyticus, 2-3 pedalis, glaber; folia obovato-lanceolata ad subcuneato-lanceolata, petiolo brevissimo crassissimo, v. subsessilia, basi attenuata rotundata v. obtusa,  $2\frac{1}{2}$ - $3\frac{1}{2}$  poll. longa, obtusiuscula v. breviter acuminata, coriacea, integra v. apicem versus obsolete et remote serrata, glabra, nervis



secus marginem anastomozantibus; flores speciosi, coccinei v. miniati, tubulosi,  $\frac{3}{4}$  ad  $1\frac{1}{4}$  poll. longi, pedicellis subpollicaribus, glanduloso-hirsutis suffulti, umbellam v. potius racemum abbreviatum pauciflorum axillarem formantes v. solitarii v. fasciculati; calyx 5-dentatus, glanduloso-hirsutus, dentibus lanceolatis acutis lin. circiter longis; corolla glabra, 5-gona, lobis linearilanceolatis obtusis; filamenta 2 lin. fere longa; antheræ e. 3 lin. longæ, granulato-tuberculatæ, in tubos rigidos plus quam poll. longos productæ; stigma parvum, truncatum v. sub-5-lobo-peltatum; baccæ glanduloso-hirsutæ, pedunculi apice subcyathiformi-incrassato insidentes, calycis limbo coronatæ.

Var. *a. genuinum*, corolla  $\frac{3}{4}$  poll. tantum longa; flores in racemos umbelliformes brevipedunculatos dispositi. (*Thibaudia obliqua*, Griff., Icon. Dicot. t. 515).

Var. *β. elegans*, corolla præcedentis sed flores solitarii v. 2-3-ni fasciculati axillares; folia vulgo latiora.—*Pegu*.

? Var. *γ. grandiflorum*, corolla duplo longior, flores in racemos umbelliformes breve pedunculatos v. sessiles collecti, rarius solitarii.—*Martaban, Tenasserim*.

N. B.—*V. verticillatum*, Wight, Ic. t. 1181. ad *V. setigerum* (*Agapetes setigera*, Don) pertinet.

160. *VACCINIUM VARIEGATUM* (*Agapetes variegata*, Don, Gen. Syst. III. 862; *Ceratostemma variegatum*, Roxb. Fl. Ind. II. 413; Griff. Icon. Dicot. t. 502; *Thibaudia variegata*, Royle, Ill. Him. Pl. t. 79, f. 1.).

Frutex epiphyticus, 2-3 pedalis, glaber; folia lanceolata ad obovato-lanceolata, acuta v. breviter acuminata, petiolis brevissimis crassis, v. subsessilia, basi acuta v. obtusa, 2-3 poll. longa, coriacea, apicem versus obsolete repando-serrata, glabra, nervis secus marginem anastomozantibus; flores coccinei, pedicellis gracilibus glabris sursum cyathiformi-incrassatis suffulti, in racemos umbelliformes axillares v. supra foliorum delapsorum cicatricibus ortos pedunculatos glabros dispositi, v. rarius fasciculati v. solitarii; corolla glabra, poll. fere longa, tubulosa, lobis obtusiusculis; calyx glaber, 5-fidus, lobis oblongis lanceolatis e. 2 lin. longis acutis sæpius obsolete costatis et penninerviis; antheræ granulato-tuberculatæ, filamentis brevissimis suffultæ, in tubos  $\frac{3}{4}$ - $\frac{1}{2}$  poll. longos productæ; stigma truncatum; baccæ glabræ, rubræ, calycis limbo coronatæ.

Variat: *a. macranthum* (*Ceratostemma variegatum*, Roxb. et Wight; *Thibaudia macrantha*, Hook., Bot. Mag. t. 4566.) flores e. 2 poll. longi v. longiores, variegati.—*Tenasserim*.

Var. *β. parviflora* (*Thibaudia variegata*, Royle) flores dimidio minores, miniati v. coccinei.—*Martaban*.



161. *VACCINIUM MINIATUM* (*Ceratostema miniatum*, Griff. Icon. Dicot. t. 504.)

Frutex epiphyticus glaber; folia oblongo-lanceolata ad oblonga, acuta v. acuminata, petiolis brevissimis crassis, v. subsessilia, basi subinæquali rotundata, 4-5 poll. longa, acuta v. acuminata, repando-serrulata, coriacea, glabra, subtus nervis numerosis et prominentibus, secus margines evanescentibus, laxè et prominenter reticulata; flores coccinei, racemos breves umbelliformes glabros axillares v. laterales efficientes, raro pauci et fasciculati; calyx glaber; corolla glabra, 5-gona, c.  $\frac{3}{4}$  poll. longa, lobis brevibus linearibus acutis; filamenta brevissima, antheræ tubo inclusæ, granulato-tuberculatæ, tubis strictis nudis paullulo breviores; baccæ desunt.—*Ava?* (Griff.)

162. *VACCINIUM CAMPANULATUM*, nov. sp.

Frutex epiphyticus, glaber, ramulis subangulatis; folia obovato-oblonga ad lanceolata, obtusa v. obtusiuscule acuminata cum mucrone, petiolis brevissimis et crassis v. subsessilia, 2-3 poll. longa, basi acuta v. obtusa, integra v. subintegra, marginibus recurvis, coriacea, glabra, nervis tenuibus secus marginem liberis, laxè reticulata; flores coccinei, sæpius variegati, pedicellis gracilibus glabris suffulti, in racemum gracilem sed brevem glabrum sæpius e ramis ortum dispositi; calyx glaber, limbo cyathiformi argute sinuato-5-dentato; corolla glabra, c.  $\frac{1}{2}$  poll. longa, v. paullo longior, 5-angularis, campanulata, lobis longis lanceolatis acuminatis reflexis; filamenta brevissima; antheræ granulato-tuberculatæ, loculis in tubos strictos anthera ipsa sublongiores dorso basi refracto-setosos terminatis.—*Martaban.*

163. *VACCINIUM MACROSTEMON*, nov. sp.

Frutex epiphyticus, 2-4 pedalis, glaber; folia cum basi crassa rotundata v. obtusa subsessilia, obovato-lanceolata ad lanceolata, acuminata, 3-5 poll. longa, marginibus integris recurva, coriacea, glabra, nervis tenuibus marginem versus liberis, tenuiter et laxè reticulata; flores coccinei, pedicellis gracilibus glabris in racemos magis minusve elongatos glabros subulato-bracteatos solitarie v. geminatim supra foliorum delapsorum axillis ortos dispositi; calyx glaber, limbo cyathiformi, lobis longe subulatis; corolla c.  $1\frac{1}{4}$  poll. longa, glabra, subcurvo-tubulosa, lobis lineari-lanceolatis reflexis; filamenta glabra, gracilia, c.  $\frac{1}{2}$  poll. longa v. longiora; antheræ breviusculæ, connatæ, læves, loculis in tubos strictos anthera longiores productis; baccæ fusiformi-ovoideæ, apice angustatæ et calycis limbo cyathiformi coronatæ.—*Martaban.*

164. *VACCINIUM PUMILUM*, nov. sp.

Frutex ramosissimus, parvus, epiphyticus, novellis pubescentibus; folia oblonga ad lanceolato-oblonga, petiolo brevissimo puberulo, basi acuta, obtusiuscula, crenulata, crasse coriacea, c. poll. longa v. breviora, subtus (in vivo albidus) pallida, nervis obsoletis; flores parvi, pedicellis brevissimis pube-



ruleis, in racemos (2 v. 1) terminales pubescentes bracteatos disgesti; bractee deciduae, albae, membranaceae, foliaceae, ovatae, puberulae et ciliatae; calyx pubescens, dentibus oblongo-lanceolatis, acutis, ciliatis; corolla c. 2 lin. longa, oblongo-urceolata, lobis brevissimis reflexis, 5-gona, extus glabra, intus imprimis ad faucem dense villosa, rosea; filamenta brevia, filiformia, apice pilosa et barbata; antherae glabrae, loculis in tubum brevem lanceolato-subulatum basi bisetosum desinentibus; baccae parvae, purpureae, glabrae, calycis limbo coronatae.—*Martaban.*

165 *VACCINIUM EXARISTATUM*, nov. sp.

Frutex magnus, saepius in arbusculam excrescens, novellis pubescentibus; folia oblongo-lanceolata ad oblongo-ovata, petiolis puberulis brevibus suffulta, basi acuta v. obtusiuscula,  $1\frac{1}{2}$ - $2\frac{1}{2}$  poll. longa, acuta v. breve acuminata, subtus dum juvenilia parce pubescentia, glabrescentia, chartacea, serrulata, penninervia et inconspicue reticulata; flores albi, pedicellis  $1-1\frac{1}{2}$  lin. longis puberulis, racemum secundum gracilem puberulum axillarem formantes; bractee coccineae, deciduae; calyx puberulus v. subglaber, lobis triangulari-acutis, corolla  $2-2\frac{1}{2}$  lin. longa, glabra, urceolata, lobis reflexis brevibus; filamenta pilosa, basi dilatata; antherae tubis brevibus et setis destitutis terminatae; baccae globosae, glabrae, rubrae, calycis limbo coronatae.—*Martaban.*

*Var. a. semipubescentis*, calyx glaber v. subglaber.

*Var. β. pubescens*, calyx pubescens.

*PRIMULACEAE.*

166. *LYSIMACHIA LINEARIFOLIA*, Griff., MS. in Hb. Griff. 3532.

Herba annua, erecta, stricta, glabra, caulibus teretibus v. subteretibus simplicibus ped. circiter altis; folia alterna, linearia ad lineari-lanceolata, utrinque acuminata,  $1-1\frac{1}{2}$  poll. longa, petiolo gracillimo sed brevi suffulta, integra, membranacea, glabra; flores parvi, solitarii v. geminati, axillares, longe pedunculati; calycis segmenta lineari-subulata, plus quam lineam longa; pedunculi fructigeri graciles, c.  $1\frac{1}{2}$  poll. longi.—*Ava?* (*Griff.*). *L. pedunculari*, Wall., affinis. *Lysimachiae* sp. Griff. Not. Dicot. 299. t. 484, speciem mihi distinctam *L. Lobelioidi* affinem nomine *L. Griffithianae* saluto.

*MYRSINEACEAE.*

167. *ARDISIA HELPERIANA*, nov. sp.

Frutex? ferrugineo-tomentosus; folia obovato-oblonga ad oblonga, petiolis 3-4 lin. longis crassis dense ferrugineo-pubescentibus, breve acuminata, integra v. obsolete repando-dentata, 3-5 poll. longa, membranacea, utrinque ferrugineo-pubescentia, nervis lateralibus tenuibus et curvis; flores parviusculi, pedicellis  $\frac{1}{2}$ -1 poll. fere longis ferrugineo-pilosis sustenti, racemum subumbelliformem ferrugineo-pubescentem pedunculo nudo 3-4 pollicari gracili



axillari suffulto formantes; calyx ferrugineo-pilosus, lobis oblongo-lanceolatis, acutis, lineam circiter longis; corolla glabra, lobis c.  $2\frac{1}{2}$  lin. longis, oblongis, acutis; drupæ desunt.—*Tenasserim* (Helf. 3589).

168. *ARDISIA SERRULATA*, nov. sp.

Frutex? novellis tomento minuto ferrugineo obtectis; folia lanceolata v. elliptico-lanceolata, basi in petiolum 5-8 lin. longum attenuata, breve acuminata v. acuta, repando-serrulata, basin versus integra, 4-6 poll. longa, tenuia et membranacea, glabra, parce punctata, nervis crebris approximatis, subparallele-divergentibus et inconspicuis; flores parvi, pedicellis gracilibus inæquali-longis ferrugineo-puberulis suffulti, densiuscule thyrsoideo racemosi et paniculam terminalem v. ex axillis foliorum superiorum ortam amplam ferrugineo-puberulam bracteata formantes; bracteæ foliaceæ, linearilanceolatae, 3-6 lin. longæ, subtus ferrugineo-lepidosæ; bracteolæ minores, lineares; calyx ferrugineo-puberulus, lobis linearibus acutis c. 1 lin. longis; corolla subrotata, lobis ovatis acutis c. 2 lin. longis; drupæ desunt.—*Ava?* (Griff. 3562). Inter *A. neriifoliam* et *A. floribundam*, Wall., intermedia.

169. *ARDISIA RIGIDA*, nov. sp.

Frutex? novellis probabiliter indistincte ferrugineo-lepidotis; folia oblongo-lanceolata, in petiolum 4-6 lin. longum crassum attenuata, breve et obtusiuscule acuminata, pergamacea, integra, 6-9 poll. longa, glabra, punctata, nervis subtus prominentibus et subparallelis; flores...parvi, pedicellis  $\frac{1}{2}$ - $\frac{2}{3}$  lin. longis crassis minute ferrugineo-puberulis nutantibus suffulti, paniculam terminalem compositam rigidam robustam ferrugineo-puberulam efficientes; calyx minute et indistincte puberulus, lobis ovatis acutiusculis, vix  $\frac{1}{2}$  lin. longis, ciliolatis; corolla...; drupæ immaturæ globosæ, glabræ.—*Tenasserim* or *Andamans*. (Helf. 3563).

170. *MÆSA MUSCOSA*, nov. sp.

Frutex ramis teretibus lævibus nitidisque, ramulis...; folia oblonga ad obovato-oblonga, basi acuta v. acuminata, petiolis  $\frac{1}{2}$ -1 poll. longis validis parce puberulis, breve acuminata, grosse sinuato-dentata, pergamacea, 5-7 poll. longa, glabra, costa subtus parce puberula, nervis secus margines in denticula callosa obtusa excurrentibus; flores minuti, 5-meri, pedicellis brevissimis pubescentibus suffulti, breve racemosi, in paniculam axillarem quasi muscosam petiolis 2-3-pl. longiorem ferrugineo-pubescentem disgesti; bracteæ lin. circiter longæ, pedicellis longiores, ferrugineo-hirsutulae, linearilanceolatae; bracteolæ?; calyx ferrugineo-hirsutus, lin. fere longus, lobis ovato-lanceolatis acutis; corolla tubuloso-campanulata, glabra, calyce duplo longior, lobis brevibus rotundatis; ovarium sub-inferior; stylus calycis lobos longitudine haud attingens.—*Burma* (Griff. 3556). Ex affinitate *M. mollissi-*



*mæ.* *M. permollis*, species olim a me in hocce diario descripta (cf. 1871, p. 66) nunc formam extremam latifoliam *M. mollissimæ*, Wall., habeo. Formas intermedias inter ambas species nuper in Burmania haud raro observavi.

### SAPOTACEÆ.

171. *ISONANDRA CALOPHYLLA*, Kurz, in Journ. As. Soc. Beng. 1871. 69.

Arbor mediocris, novellis dense adpresse ferrugineo-pubescentibus; folia elliptica v. elliptico-oblonga, petiolis 4-5 lin. longis cupreo-puberulis glabrescentibus, breve acuminata, integra, marginibus recurvulis, 4-7 poll. longa, chartacea, minute ferrugineo- v. cupreo-sericea glabrescentia, supra nitida, nervis lateralibus prominentibus validis, transverse tenui-venosa; flores nondum reperti; fructus pruni magnitudinis, pedunculo nutante, 1-1½ pollicari subglabro axillari sustenti, elliptico-ovati, apiculati, dense ferrugineo-puberuli, 1-2-spermi, basi calyce persistente 6-partito lobis ovatis supportati; semina semi-oblonga, 1½ poll. fere longa, lucida, brunnea.—*Andamans.*

### EBENACEÆ.

172. *GUNISANTHUS MOLLIS*, nov. sp.

Arbuscula ramis novellisque brunneo-pubescentibus; folia petiolo brevissimo (c. 1 lin.) suffulta, anguste oblonga v. oblongo-lanceolata et sæpius basin obtusam versus subangustata, obtusiuscule acuminata, 3-4 poll. longa, chartacea, supra secus costam et subtus omnino molliter pubescentia; flores ochracei, extus dense pubescentes, pedicellis 4-6 lin. longis pilosis suffulti, racemos breviusculos pilosos efficientes; calycis lobi lineari-lanceolati, c. 3 lin. longi, tubo multo breviores; corollæ lobi tubo calycino paullulo longiores, feminei fructusque adhuc ignoti. *Diospyros mollis*, Kurz MS. olim.—*Martaban.*

173. *DIOSPYROS SAPOTOIDES*, nov. sp.

Arbor mediocris, novellis parce ferrugineo-pubescentibus mox glabrescentibus; folia elliptico-oblonga ad elliptica, basi obtusa, petiolo vix semipollicari glabrescente crasso suffulta, 6-8 poll. longa, breve et obtusiuscule acuminata, integra, coriacea, reticulatione laxissima subtili et immersa percursa; flores hermaphrodito-feminei 4-meri, flavescenti albi, iis *D. sapotæ* assimiles, subsessiles, glomerati, pedunculo crassissimo axillari brevissimo; calyx extus ferrugineo-pubescentis, lobi ovato-lanceolati marginibus reflexi et basi auriculato-complicati, 3 lin. fere longi, acuminati; corollæ tubus urceolatus, calyce sub-duplo longior, extus ferrugineo-pubescentis, lobis obovatis tubi fere longitudinis; stamina c. 12, tubo basi inserta, glabra, inæqualia; antheræ ovato-lanceolatæ, acuminatæ; filamenta filiformia, glabra; ovarium ovatum, glaberrimum, stylo moderate longo 4-fido; flores masculi fructusque desunt.—*Pegu.*—*D. undulatæ* arcte affinis, sed ovario glaberrimo discrepat.



## STYRACACEÆ.

## 174. SYMPLOCOS PEDICELLATA, nov. sp.

Arbor mediocris subgracilis, novellis sparse adpresse sericeis; folia elliptico-lanceolata ad lanceolata, in petiolum 4—5 lin. longum gracilem glabrum attenuata, subcaudato-acuminata, obsolete crenato-serrulata, 4-5 poll. longa, tenuiter pergamacea, glabra, opaca, nervis et reticulatione laxa subtilibus; flores ignoti; racemi graciles compositi paniculam depauperatam subsessilem minute adpresse pubescentem axillarem v. supra foliorum delapsorum cicatricibus ortam efficientes; bracteæ casæ; bracteolæ  $\frac{1}{8}$  lin. vix longæ, minutæ, ovato-acutæ, glabræ, deciduæ; pedicelli vulgo 2 lin. longi, minute adpresse pubescentes; baccae immaturæ ovoideæ, 3-4 lin. longæ, læves, teretes, calycis limbo coronatæ, putamen pergamaceum monospermum includentes; calycis lobi sub fructu lato-ovati, obtusi, c.  $\frac{1}{3}$  lin. longi, glabri. *Martaban*.—*S. lucidæ*, Wall., affinis, pedicellis distinguitur.

## 175. SYMPLOCOS LEIOSTACHYA, nov. sp.

Arbor v. frutex subglaber; folia elliptico-lanceolata ad lanceolata, petiolis 3-4 lin. longis sparse hirtis suffulta, acuminata, crenato-serrulata, 2-4 poll. longa, subchartacea, supra lucida, subtus secus costam validam nervosque parce adpresse pubescentia, nervatione tenui et inconspicua percurta; flores parvi, pedicellis gracilibus 1-1 $\frac{1}{2}$  lin. longis glabris suffulti, racemos numerosos graciles simplices glabros ex apice ramorum orientes efficientes; bracteæ pedicelli basi insertæ, lin. circiter longæ, lanceolatæ, acutæ, glaberrimæ; bracteolæ sub calyce 2, bracteis subconformes sed minutæ; calyx lævis, lobis ovatis obtusis, c.  $\frac{2}{3}$  lin. longis; corolla rotata, lobis ovato-oblongis, obtusis, c. 1 $\frac{1}{2}$  lin. longis; stamina numerosa, inæqualia, basi tubo brevissimo inserta; baccas nondum vidi.—*Tenasserim* (Helf-3656).

## 176. SYMPLOCOS LEUCANTHA, nov. sp.

Arbuscula glabra; folia oblongo ad elliptico-lanceolata, basi sub-inæqualia, petiolo 2-3 lin. longo inserta, breve et obtusiuscule acuminata, 3-4 poll. longa, crenulato-dentata, chartacea, glabra; flores albi, fragrantés, pedicellis brevissimis vix  $\frac{1}{3}$  lin. longis crassis canescenti-tomentosis suffulti; racemi breves, tomentosi, axillares, bracteis nonnullis ovatis extus pubescentibus caducis sustenti; calyx glaberrimus v. ejus lobi ovati obtusi extus pubescentes, ciliolati, c. 2 lin. longi; petala obovato-oblonga, calycis lobis duplo longiora; stamina glabra, inæqualia, 5-adelpha, phalangibus basi loborum insertis; ovarium stylusque longus parce pubescens; drupa non visa.—*Pegu*. Ex affinitate *S. cratægioidis*, Don.

## APOCYNÆÆ.

## 177. TABERNÆMONTANA OPHIORRHIZOIDES, nov. sp.

Frutex 2-4 ped. altus, glaber; folia obovato-oblonga ad lato-lanceolata in petiolum brevissimum (2-3 lin.) attenuata v. foliorum nonnulla subsessi-



lia, breve acuminata, 3-5-poll. longa, integra, membranacea, glabra, subtus pallida; flores pedicellis 1-1½ lin. longis suffulti, cymas 3, v. raro 2, v. plures breve pedunculatas, v. nonnunquam subsessiles, glabras paucifloras in ramulorum superiorum furcationibus sitas efformantes; calyx glaber, brevissimus, 5-fidus, segmentis lineam vix longis, lanceolatis, acutis; corollæ tubus subcrassus, c. 4 lin. longus, apice inflatus, lobis tubo vix dimidio brevioribus; folliculi... —*Martaban*. *T. rostrata*, Wall., affinis videtur, a qua inter alia corolla duplo brevior differt.

178. *TABERNÆMONTANA MEMBRANIFOLIA*, nov. sp.

Frutex 3-4 pedalis, glaber; folia lanceolata ad lato-lanceolata, in petiolum 3-5 lin. longum attenuata, 3-5 poll. longa, longe et graciliter acuminata, integra, membranacea, glabra, subconcolora; flores albi, pedicellis gracilibus 4-6 lin. longis glabris inserti; cymæ vulgo binæ, breve pedunculatæ, dichotomo-ramosæ, glabræ, laxæ, corymbiformes in ramulorum superiorum furcationibus sitæ; bracteæ nullæ v. minutæ et deciduæ; calyx minutus, lobis lineari-subulatis, lineam vix longus; corollæ tubus gracilis ¾ poll. longus, infra medio circa antheras leviter inflatus, lobi lineari-lanceolati, acuminati, tubo dimidio circiter breviores; folliculi desunt.—*Martaban*. *T. subcapitata*, Wall., affinis, sed calyce jam distincta.

*BIGNONIACEÆ.*

179. *SPATHODEA VELUTINA*, nov. sp.

Arbor, novellis fulvo-puberulis; folia impari-pinnata, 1-1½ ped. longa, petiolo glabro striato basin versus 1-2 foliolis diminutis stipuliformibus munita; foliola 4-juga cum impari longe petiolato, basi inæqualia, sessilia v. subsessilia, oblongo-lanceolata, acuminata, 4-6 poll. longa, serrulata, membranacea, glaberrima; inflorescentia deest; calyx spathaceus, recurvato-acuminatus, extus fulvescenti-velutinus, c. 1½ poll. longus; corolla c. 3 pollicaris, campanulato-infundibuliformis, glabra, tubo pollicari constricto, filamenta glabra, tubo supra constrictione inserta; capsula deest.—*Ava, Pegu* (Dr. Brandis).

180. *HETEROPHRAGMA SULFUREA*, nov. sp.

Arbor mediocris decidua, novellis tomento fugaceo canescenti-villoso obductis; folia impari-pinnata, 2-3 ped. longa, rachî petioloque fugaciter floccoso-tomentoso; foliola 4-5-juga cum impari longe petiolato, elliptica et ovato-elliptica ad ovalia, juniora obtusiuscule apiculata v. obtusiuscula et obsolete serrata, basi rotundata v. obtusa, sessilia v. brevissime petiolulata, 4-6 poll. longa v. longiora, chartacea, parce puberula, supra mox glabrescentia; flores sulfurei, conspicui, pedicellis cinerascenti- v. flavescenti-tomentosis 3-4 lin. longis suffulti, paniculas breves terminales dense tomentosas efficientes; calyx ¼-¾ poll. longus v. brevior, campanulatus, usque ad medium fissus,





distincte 3. v. 2-lobatus v. dentatus, extus cinerascenti-tomentosus, intus glaber; corolla infundibuliformis, glaberrima, tubo pollicari v. longiori, lobi patentes tubo plus quam duplo longiores, undulato-crispati; capsulæ usque 2 pedales, iis *Spathodeæ stipulatæ* assimiles, elongato-lineari-oblongæ, compressiusculæ, dense fumoso-tomentosæ, septo brevi et valde reducto, medio septi instar dilatato; semina elongato-membranaceo-alata, c. 2 poll. longa.—*Prome, Pegu.*

181. *SPATHODEA IGNEA*, Kurz, in Journ. As. Soc. Beng. vol. XL, p. 77 descripta, potius generis novi typum præbet, calyce tantum usque ad medium fissio circumscisse deciduo spathaceo, filamentis usque ad medium corollæ adnatis, antherarum loculis parallelis, nec non foliis decompositis a *Spathodea* distingui potest et sub nomine *Mayodendri* (in honorem viri nobilissimi Mayo, proregis infausti Indiæ orientalis, dictum) in narratione mea officiali de sylvis Burmanicis fusius descripsi et iconibus illustravi.

182. *STEREOSPERMUM NEURANTHUM*, nov. sp.

Arbor mediocris, novellis molliter pubescentibus; folia impari-pinnata, juniora præsertim subtus pubescentia, 1-1½ ped. longa; foliola 3 v. 2-juga cum impari longe petiolato, basi subinæquali acuta v. obtusa, petiolulo crasso 1-2 lin. longo suffulta, obtusiuscula v. obtusiuscule apiculata, 2-4, nonnunquam usque ad 5-6, poll. longa, integra, rigide chartacea, juniora subtus canescenti-tomentosa denuo magis minusve scabrescentia, supra scabrescentia glabrescentia et subrugulosa; flores conspicui, pallide lilacini v. cyanescenti-albi, atropurpureo-venosi, pedicellis 4-7 lin. longis pubescentibus apicem versus bibracteolatis, in paniculam breviusculam subcymiformem pubescentem terminalem dispositi; calyx c. 4 lin. longus, pubescens, breviter 4-lobus; corolla campanulato-infundibuliformis, subcurva, puberula, lobis leviter undulato-crispatis; capsulæ elongato-lineares, cylindrico-4-gonæ, glabræ, 1-1½ ped. longæ; semina et septum uti in *S. chelonioide*.—*Pegu.*

### ACANTHACEÆ.

183. *RUELLIA FLACCIDA*, nov. sp.

Herba debilis, pilosa, ramosa et suberecta, 1½-2 pedalis, caulibus longe et patenter pilosis; folia ovata, basi contracta et in petiolum gracilem pilosum ½-¾ poll. longum attenuata, obtusa, 1½-2 poll. longa, membranacea, obsolete crenato-dentata, præsertim supra parce pilosa; flores parviusculi, pallide cœrulei, inter bracteas foliaceas obovato-oblongas obtusas v. emarginatas pilosas fimbriatas vulgo solitarii et sessiles; calyx 3 lin. fere longus, lobis linearibus, ciliatis et pilosis; corolla c. 6 lin. longa, tubuloso-infundibuliformis, glabra, tubo breviusculo, lobis brevibus rotundatis; stamina 4, filamenta longe pilosa; stylus simplex, 6 lin. fere longus, glaber; ovarium glabrum.—*Pegu.*



184. *RUELLIA MACROSIPHON*, nov. sp. (R. sp. T. And. in Linn. Proc. IX. 461 in nota).

Herba perennis? subsimplex, 2-3 pollicaris, caulibus hirsutis, novellis pilis albis crispis sublanuginosis; folia lineari-lanceolata v. linearia, c. 2 poll. longa, acuminata, in petiolum brevissimum attenuata, integra, membranacea, ciliata, utrinque præsertim secus nervos hirsutula; flores magni, solitarii, sessiles, bracteis 2 foliaceis pedunculum brevem axillarem terminantibus insidentes; bracteæ lineari-lanceolatæ, calyce pluries longiores, structura et indumento foliis similes; calycis segmenta lineari-subulata, c.  $2\frac{1}{2}$  poll. longa, minute puberula; corolla tubuloso-infundibuliformis, c. 2 poll. longa, extus parce pilosula, lobis magnis rotundatis, tubo pollicari gracili in corollæ partem efflatam sensim ampliata; stylus longissimus, parce hirsutus; stamina 4, subæquilonga, inclusa; filamenta gracilia, parce hirsuta.—*Prome?* (Col. Eyre). *R. suffruticosæ*, Roxb., arete affinis.

185. *STROBILANTHES* (HEMIGRAPHIS) *BURMANICA*, nov. sp.

Herba decumbens ramosissima pilis albis patentibus cum glanduliferis intermixtis vestita, cauli ramisque 4-gonis; folia ovata ad ovato-lanceolata, basi in petiolum  $\frac{1}{2}$ -2 poll. longum pilosum angustata, obtusiuscula,  $1\frac{1}{2}$ -2 poll. longa, membranacea, crenato-dentata, utrinque parce pilosa; flores pallide cyanei, passim solitarii et axillares, frequentius autem in spicas longiores v. breviores foliaceo-bracteatas pilosas pedunculatas axillares et terminales digesti; bracteæ ovato-lanceolatæ, obtusiusculæ, integræ, parce pilosæ et longe ciliatæ, inferiores usque ad 7 lin. longæ; bracteolæ nullæ; calyx pilosus, segmentis linearibus 4 lin. longis; corolla rugata, 6 lin. circiter longa, glabra, ore pubescens, sensim in tubum attenuata, lobis obtusis rotundatis; antheræ 2-loculares, pallide violaceæ; filamenta crassa, piloso-barbata; stylus inæquali-2-fidus; capsulæ 4 lin. longæ, compresso-4-gonæ, obovato-lineares, acutæ, glabræ, a basi fere 8-spermæ; semina plus quam  $\frac{1}{2}$  lin. in diametro, anguste marginata.—*Ava, Prome, Pegu. S. (Hemigraphidi) Pavalæ*, quacum cl. T. Anderson confudit, affinis.

186. *STROBILANTHES* (HEMIGRAPHIS) *GLANDULOSA* (*Hemigraphis glandulosa*, T. And. MS. in Kurz, And. Rep. App. B. 13.)

Herba ramosa, glanduloso-puberula; folia lanceolata v. oblongo-lanceolata, obtusiuscule acuminata, in petiolum glandulosum brevem attenuata, 2-2 $\frac{1}{2}$  poll. longa (superiora minora) repando-dentata, præsertim subtus secus costam glanduloso-puberula, supra glabrescentia; flores parviusculi, pulchre lutei, in axillis bractearum foliacearum vulgo solitarii, spicas 1 v. 2 axillares et terminales interruptas longe-pedunculatas foliaceo-bracteatas efformantes; bracteæ foliis caulinis similes sed multo minores, obtusæ, superiores sensim minores; bracteolæ calyce breviores, obovato-oblongæ, viscoso-hirsutæ; calycis segmenta lineari-spatulata, obtusa, glanduloso-hirta, c.  $2\frac{1}{2}$



lin. longa; corolla c. 3. lin. longa, campanulato-infundibuliformis, tubo breviter extus puberulo intus laevi, lobis rotundatis; stylus et filamenta glabra; capsulae clavatae, compressiuscule 4-gonae, calycis longitudine v. paullo longiores, apiculatae, glanduloso-puberulae, abortu vulgo 2-3-spermae.—*Andamans.* Ex affinitate *S. (Hemigraphis) Griffithianae*.

187. *STROBILANTHES NEESII*, nov. sp.

Frutex magnus, 10-12 pedalis, ramulis puberulis glabrescentibus; folia lanceolata ad oblongo-lanceolata, breve acuminata, in petiolum  $\frac{1}{2}$ -1 $\frac{1}{2}$  poll. longum attenuata, obsolete repando-dentata, 5-7 et saepius usque ad 10 poll. longa, membranacea, utrinque pilis minus adpressis adspersa, subtus secus costam puberula; flores majusculi, in spicas densas bracteatas sessiles denuo elongatas laxas interruptas axillares et terminales\* dispositi; bractee inferiores v. potius folia floralia foliaceae, valde caducae, c.  $\frac{1}{2}$  poll. longae v. longiores, setis brunneis ciliatae, apicem versus fissae et serratae; bractee verae oblongo-lineares, calyce breviores, apicem versus vulgo parce serratae, acuminatissimae, glanduloso-pilosae; bracteolae 2, calycis longitudine, lineari-lanceolatae, acuminatae, basi attenuatae, glanduloso-hirsutae; calycis segmenta c. 6 lin. longa, v. longiora, linearia, canescentia, ciliata, acumen versus saepius glanduloso-hirsuta; corolla 1 $\frac{1}{4}$ -1 $\frac{1}{2}$  poll. longa, purpurea, extus glabra, intus fauce secus plicam duplicatam pubescens, tubo longo et gracili; stamina 2 (?); filamenta glabra, filiformia, alte adnata; stylus hirsutus; capsulae lineari-clavatae, calyce paullo longiores, glabrae, acumine parce hirtulae, 4-spermae; semina sericea.—*Martaban. S. fimbriatae*, N. E., maxime affinis, sed indumento glanduloso nigrescente, corolla et filamentis glabris differt.

188. *STROBILANTHES FETIDISSIMA*, nov. sp.

Herba ramosa, caulibus divaricatis subteretibus, plus minusve dense fulvo-pilosa; folia ovata, basi in petiolum longum gracilem fulvescenti-pilosum attenuata, acuminata, membranacea, 3-5 poll. longa, serrato-dentata, utrinque albido v. ochrascenti-hirsuta; flores cyanei, conspicui, spicam laxiusculam brevem albido-pubescentem pedunculo brevi axillari dense fulvescenti-hirsuto suffultam v. subsessilem efformantes; bractee obovato-cuneatae, c. 8 lin. longae, obtusae, herbaceae, glanduloso-hirsutae; bracteolae bracteis conformes sed angustiores et subbreviores; calyx bractearum longitudine, adpresse glanduloso-puberulus, segmentis profunde lobulatis; corolla 1 $\frac{1}{2}$  poll. fere longa, glabra; filamenta glabra; stylus hirsutus; capsulae c. 8 lin. longae, glaberrimae; semina fere 2 lin. in diametro, adpresse villosa.—*Martaban. S. rufescenti* affinis.

189. *STROBILANTHES PTEROCAULIS*, nov. sp.

Herba annua, robusta, erecta, ramosa, sparse hirsuta, caulibus crassiusculis quadrangulati-alatis, alis herbaceis dense fimbriatis; folia 8-12 poll.



longa, obovato-oblonga, basi angustato-cuneata ciliata in petiolum crassum brevissimum (2-3 lin.) decurrentia, breve acuminata, crenato-dentata, membranacea, utrinque plus minusve hirsuta; flores parvi, flavescentes, spicas breves dense bracteatas glandulosas 3-4-nas in paniculam axillarem dispositi; pedunculi et ramificationes acute 4-angulati, anguste alati, et dense hirsuto-ciliati; bracteae obovato-cuneatae, obtusae, 3-4 lin. longae, glanduloso-fimbriatae et apice pilis hyalinis articulatis glanduloso-hirsutae; bracteolae 2, calycis longitudine, obovato-lineararia, apice glanduloso-hirsutae; calycis segmenta linearia, obtusiuscula, 3 lin. fere longa, hyalino-chartacea, apice parce glanduloso-hirsuta; corollae omnes caesae; capsulae calycis longitudine v. paululo longiores, lineari-oblongae, 4-angulares, apice hirsutae, 4-spermatae.—*Pegu. St. imbricata*, NE., affinis.

190. *STROBILANTHES KARENSIUM*, nov. sp.

Herba perennis, ramosa, magis minusve albo-hirsuta; folia caulina inferiora brevissime petiolata, superiora subsessilia, ovata, brevissime acuminata, membranacea, crenata, utrinque hirsuta, 2-3 poll. longa v. longiora; spicae breves, densiusculae, infra basi foliolis nonnullis floralibus subsessilibus hirsutissimis sustentae, pedunculo stricto hispido terminali v. axillari suffultae; bracteae lineares, c. 4 lin. longae, obtusiusculae, dense glanduloso-pubescentes; bracteolae lineari-subulatae, glanduloso-pubescentes; calyx subscariosus, bracteolarum longitudine, segmentis lato-linearibus albido-marginatis sursum pubescentibus; corolla cyanea, pollicem fere longa, glabra; filamenta secus partem adnatam hirsuta; capsulae bracteolarum longitudine, dorso pubescentes.—*Martaban.* Habitu *S. acrocephali*, characteribus essentialibus autem *S. glomeratae* proxima.

191. *S. SUBFLACCIDA*, nov. sp.

Herba gracilis, glabra, caulibus obsolete 4-gonis sulcatis; folia lanceolata ad oblongo-lanceolata, acuminata, basi in petiolum  $\frac{1}{2}$  poll. longum attenuata, repando-dentata, flaccida, membranacea, 5-6 poll. longa, supra glabra subtus pilis minutis adpressis albidis adpersa; spicae dense et minute adpresse hirsutae; bracteae lato-obovato-oblongae ad oblongae v. obovato-lanceolatae, obtusissimae v. emarginatae, minute puberulae, enerviae, (purpureo?) coloratae, c. 2 lin. longae; bracteolae paullo breviores, minus obovatae, 1-nerviae, minute adpresse pubescentes; calyx bilabiatus, labio superiore glabro usque ad  $\frac{1}{2}$ , partem trilobo, lobis obtusis obsolete ciliatis, labio inferiore fere usque ad basin bifido, lobis linearibus obtusis, 1-nerviis extus minute pubescentibus; capsulae 2-2 $\frac{1}{2}$  lin. longae, calycem non superantes, clavato-oblongae, glabrae.—*Tenasserim.* (Helf. 6114).

192. *STROBILANTHES DASYSERMA*, nov. sp.

Herba erecta, ramosa, subglabra, 3-4 pedalis; folia inferiora magna, 6-8 poll. longa, oblongo-lanceolata ad lanceolata, basi cuneata in petiolum bre-



viusculum decurrentia, acuminata, serrato-dentata, membranacea, ciliata et supra pilis raris brevibus adspersa, subtus glabra et subglauescentia; superiora caulina multo minora et basi magis rotundata, v. cordata, ovata, haud decurrentia, breve petiolata v. summa sessilia; flores cyanei, in capitula parva glanduloso-puberula pedunculata congesti, paniculam spuriam terminalem glanduloso-puberulam efformantes; bracteæ parvæ, oblongæ, acutæ, glandulosæ; calyx glandulosus, segmentis linearibus 3 lin. fere longis; corolla glabra, infundibuliformis, poll. fere longa; filamenta et stylus sparse pilosi; capsulæ calycis longitudine, obovato-4-gonæ, glanduloso-pubescentes, 4-spermæ, seminibus stupposo-villosulis.—*Pegu.* Habitu *S. Bærhaavioidis*, T. And., assimilis, floribus capitatis &c., autem in vicinitatem *S. pentstemonoidis*, T. And., referenda.

193. *BARLERIA STENOPHYLLA*, nov. sp.

Herba perennis, inermis, 1-1½ pedalis, subglabra, ramis erectis gracilibus, omnibus partibus plus minusve nitentibus; folia anguste linearia, 3-4 poll. longa, c. 2 lin. lata, spinescenti-acuta, subsessilia, coriacea, integra, supra adpresse hirsutula et sublucida; flores magni, sessiles, fasciculati, bracteati axillares et terminales; bracteæ lucidæ, rigidæ, ovato-lanceolatæ, pungenti acuminatæ, spinescenti-ciliatæ, extus secus costam adpresse hirsutæ; sepala exteriora oblonga, apice 2-fida, rigide ciliata, poll. fere longa, glabra; interiora brevissima, lineari-lanceolata, adpresse pubescentia; corolla circ. 2-pollicaris, puberula, cyanea?, tubo gracili sesquipollicari, lobis 8 lin. longis, rhomboideo-oblongis apiculatis crenatis; capsulæ desunt.—*Ava* (Dr. J. Anderson).

194. *NEURACANTHUS GRANDIFLORUS*, nov. sp.

Herba divaricata v. suberecta, subrigida, ramis retrorse-hirsutis v. lineis 2 v. 4 retrorse villosis notatis; folia parva, 1½-2 poll. longa, vulgo obovata v. oblonga, obtusiuscula v. breve acuminata, basi in petiolum brevissimum latum attenuata v. superiora subsessilia, obsolete dentata, membranacea, glaberrima; flores majusculi, pallide v. intense cyanei, spicas elongatas densas v. laxas subtetragonas hirsutas rigide-bracteatas ex foliorum axillis v. e rhizomate protrusas efficientes; bracteæ ovato-lanceolatæ, rigidæ, 5-nerviæ, pubescentes et hirsutæ, acuminatæ, pungentes; calyx bilabiatus, pubescens, secus segmenta linearia parce pilosus, prominenter 5-costatus; corolla ½ poll. longa, rugata, lobis obtusis; capsulæ tetragono-lanceolatæ, acuminatæ, glabræ, 3 lin. longæ, 4-spermæ; semina sericeo-splendentia.—*Prome.*

195. *NEURACANTHUS SUBUNINERVIS*, nov. sp.

Herba erecta, probabiliter 1-2 ped. alta; folia adulta &c., ignota; flores albi, parvi, in spicas laxiuscule-bracteatas subtetragonas glandulosas et parce pilosas e rhizomate protrusas digesti; bracteæ lanceolatæ, pungenti-acuminatæ, rigide membranaceæ, c. 3 lin. longæ, concavæ, medio prominenter



costatæ, costis autem 4 lateralibus obsoletis, glanduloso-puberulæ, secus nervos pilosæ; bracteolæ bractearum longitudine, falcato-lineares, sub-3-nerviæ, acuminatæ, glanduloso-puberulæ et piloso-ciliatæ; calyx profunde, fere usque ad basin, 5-fidus, nervis evanidis, glanduloso-puberulus et piloso-ciliatus, lobo superiore majore c. 4 lin. longo, lineari, acuto, lobis lateralibus paullo brevioribus, subulatis, 2 inferioribus basi tantum connatis et angustioribus; corolla alba, intus præsertim ad labellum brunneo-maculata, extus puberula, 4 lin. fere longa, tubo 2 lin. longo; labium superius emarginatum, marginibus reflexum, inferius 3-lobum, lobis oblongis rotundatis mediano sub-breviori; antherarum loculi compressi, barbatæ, obliquæ; filamenta brevissima, fauci inserta; reliqua ignota.—*Prome.*

196. *LEPIDAGATHIS STROBILINA*, T. And. MS.

Herba 1-2-pedalis, glabra caulibus teretibus elevato-4-lineatis; folia lanceolata, basi cuneata in petiolo decurrentia, acuminata, membranacea, integra, 7-8 poll. longa, glabra et nitentia; capitula florum laxa, terminalia, majora; bracteæ c. poll. longæ, oblongo-lanceolatæ, acuminatæ, tenuiter chartacæ purpureo-lilacino-tinctæ, 1-nerviæ et reticulatæ, glanduloso-puberulæ; bracteolæ bracteis conformes, angustiores; calyx magnus; corolla magna, purpureo-lilacina, poll. fere longa, infundibuliformis, tubo brevi; capsulæ desunt.—*Martaban.* (Revd. Parish).

197. *JUSTICIA DASYCARPA*, nov. sp.

Herba ramosa, 1½-3 pedalis, subglabra, caulibus sæpius lineis 4 hirtulis notatis; folia ovata, passim subobliqua, in petiolo gracili longo decurrentia, 3-5 poll. longa, breve acuminata, integra, membranacea; pilis minutis adpressis scabra; flores parvi, candidi, spicas breves laxè bracteatas solitarias axillares v. plures terminales efformantes; bracteæ ovatæ ad ovato-orbiculares, brevissime acuminatæ, 3-4 lin. longæ, membranacæ, virides, sparse ciliatæ; bracteolæ calyce paullo longiores, lineari-lanceolatæ, puberulæ; calyx 1½ lin. longus, puberulus, lobis lineari-lanceolatis acuminatis; corolla 3½-4 poll. longa, labio superiore oblongo obtuso, inferiore 3-lobo; antheræ albæ; capsulæ fere 4 lin. longæ, clavatæ, dense puberulæ, 4-spermæ; semina verruculoso-aspera.—*Martaban.* *J. Atkinsonianæ*, T. And., affinis, sed floribus longe distat.

198. *JUSTICIA CALONEURA*, nov. sp.

Herba perennis, erecta, glabra, 2-3 pedalis; folia elliptico-oblonga ad lanceolata, acuta v. acuminata, basi cuneata et secus petiolum totum foliaceo decurrentia, 6-8 poll. longa, integra v. subintegra, membranacea, glabra v. subtus secus nervos laterales numerosos approximatos fugaciter adpresse puberula; spicæ glabræ, terminales, pedunculis brevissimis v. sessiles; bracteæ decussatim oppositæ, sub-or biculares, acutæ v. apiculatæ, ciliatæ, c. ½ poll. longæ, virides et nervosæ; bracteolæ lineari-lanceolatæ, acuminatæ; calycis



segmenta linearia, minute pubescentia ; corolla  $\frac{1}{2}$  poll. longa, extus puberula, intus secus filamentorum bases adnatas villosa, straminea, labio inferiori 3-lobo obscure-striato, labio superiore paullo longiore, concavo, 2-denticulato ; capsulae desunt.—*Martaban.* Præcedenti affinis.

199. *JUSTICIA FLAVA*, nov. sp.

Herba 2-3 pedalis, erecta, ramosa, subglabra, ramis (præsertim superioribus) 6-5-gonis, parce hirsutulis ; folia ovata ad ovato-lanceolata, basi angustata et in petiolum longiorem v. breviorē indistincte hirsutum decurrentia, acuminata, 4-6 poll. longa, integra, membranacea, siccando nigrescentia, utrinque pilis raris brevibus adpersa ; flores lutescentes, pedicellis brevissimis, in racemos breves cymæformes paucifloros glabros axillares petioli circiter longitudinis dispositi ; bractea et bracteolæ remotæ, lineares, parvæ, glabræ ; calyx glaber, c.  $1\frac{1}{2}$  lin. longus, lobis lineari-lanceolatis, acuminatis ; corolla c.  $3\frac{1}{2}$ -4 lin. longa extus secus venas pubera, tubo brevi, labio superiore concavo, inferiore 3-lobo, faucem versus rugato, lobis rotundatis ; filamenta glabra ; anthera inferior calcarata ; capsulae clavatae, tumidae, acutae, glabræ  $\frac{1}{2}$  poll. fere longæ, 4-spermæ ; semina minute rugulosa.—*Martaban.*

200. *DICLIPTERA SPECIOSA*, nov. sp.

Herba annua, erecta, ramosa, 1-3 pedalis, pilosa, caulibus sub-teretibus lineis 4 elevatis notatis plus minusve glabrescentibus ; folia ovata ad ovato-oblonga et lanceolata, in petiolum pilosum v. substupposo-ciliatum 1-2 poll. longum decurrentia, breve acuminata, 5-7 poll. longa, integra, membranacea, utrinque pilis crispatis adpersa ; flores albi, raro pallide cyanei, in cymas brachiatas longius v. brevius pedunculatas glanduloso-pubescentes v. pilosas congregati et paniculam magis minusve compositam efficientes ; bractea obovato-lineares, obtusæ (v. in var.  $\beta$  acutæ), c. 3-4 lin. longæ ; bracteolæ dimidio breviores, lineari-subulatæ ; calyx bracteolis vix brevior, minute puberulus, segmentis subæqualibus, lineari-subulatis et minute ciliolatis ; corolla 7-8 lin. longa, resupinata, tubo  $2\frac{1}{2}$  lin. fere longo, labio superiori lineari-lanceolato, obtuso, lobo mediano brevi reflexo, labio inferiore 3-lobo, cymbiformi-complicato, lobis 2 lateralibus horizontaliter patentibus rotundatis ; antheræ superpositæ, albæ ; capsula lato obovato-cuneatæ, glanduloso-puberulæ, c. 4 lin. longæ, 4-spermæ ; semina verruculis minutis flavescensibus aspera.—*Pegu.*

*Var. a. genuina*, bractea obtusæ, glanduloso-puberulæ ; caules glabrescentes ; corolla alba, labio inferiore coccineo-punctato ; pedunculi glanduloso-puberuli, breviores (forma umbrosa).

*Var.  $\beta$ . pilosa*, caules, inflorescentia &c., patenter-pilosa ; bractea lineares acutæ, pedunculi vulgo longiores ; corolla præcedentis, raro pallide cyanea, intus atropurpureo-maculata, (forma arida, an species ?)



Acanthacearum genera in regno Burmanico adhuc observata secundum systema Neesianum paullisper mutatum sic distinguenda :

Subord. I. THUNBERGIEÆ. *Calyx ad annulum dentatum v. nudum reductus.* Corolla 5-loba, subregularis. Antheræ 2-loculares, loculis parallelis. Semina globosa, placentæ cupulari insidentia. *Capsulæ rostratæ.*

1. *Thunbergia*, L. F. Genus unicum. Herbæ v. frutices scandentes raro suberecti.

Subord. II. ACANTHACEÆ. *Calyx bene evolutus, 5-partitus -fidus v. dentatus, regularis v. irregularis.* Corolla varia. Antheræ 2 v. 1-loculares, loculis parallelis, obliquis v. superpositis. Semina compressa, raro globosa, retinaculis uncatis v. glanduliformibus sustenta. *Capsulæ non rostratæ.* Herbæ v. frutices sæpius erecti, raro scandentes v. prostratæ.

Trib. 1. ACANTHEÆ. *Calyx inæqualis. Corolla fissa in labellum unicum magnum expansa. Antheræ 1-loculares, v. eæ paris inferioris oblique 2-loculares.* Capsulæ a basi seminiferæ. Semina compressa, retinaculis uncatis sustenta.

\* Corolla in labellum magnum expansa, lobis superioribus omnino suppressis v. rudimentariis, tubus brevissimus v. nullus.

2. *Acanthus*, L. Spicæ  $\infty$ -floræ. Antheræ omnes 1-loculares.

2. *Blepharis*, Juss. Spicæ unifloræ; flores bracteis pluribus sæpius spinosis sterilibus circumdati. Antheræ paris inferioris 2-loculares.

\*\* Corollæ tubus longus, limbus 5-lobus usque ad tubum fissus.

4. *Crossandra*, Salisb. Bractææ inermes, in acumen spinosam productæ.

Trib. 2. RUELLIEÆ. *Calyx magis minusve irregularis, sæpius bilabiatus.* Corolla infundibuliformis, hypocraterimorpha v. raro ringens. Stamina 4 v. 2; *antheræ 2-loculares, loculis parallelis*, rarissime obliquis (nec autem superpositis). Capsulæ basi sterili attenuatæ v. a basi seminiferæ. Semina compressa, retinaculis uncatis sustenta.

\* *Barlericæ* Calyx 3-partitus, sepalis decussatis, 2 exterioribus sæpius majoribus. Capsulæ a basi seminiferæ.

5. *Barleria*, L. Corolla infundibuliformis. Stamina 4, raro 5, quorum 2 v. 3 sæpius sterilia et rudimentaria; antherarum loculi paralleli.

\*\* *Neuracanthæ.* Calyx 5-fidus, irregularis, v. bilabiatus, v. segmento superiori tantum maximo. Corolla bilabiata



et ringens, v. infundibuliformis. Antherarum cellulæ parallelæ v. obliquæ. Capsulæ a basi seminiferæ.

○ Calyx bilabiatus. Capsulæ dissepimenta non secedentia. Spicæ rigidæ v. scariosæ, vulgo 4-stichæ.

6. *Neuracanthus*, N. E. Stamina 4; antherarum loculi obliqui. An potius cum genere sequenti jungendum?

7. *Lepidagathis*, Willd. Stamina 4; antherarum loculi paralleli.

○○ Calycis segmentum superius maximum et bracteiforme. Capsulæ dissepimenta in lamellas 2 seminifera secedentia.

8. *Phayloopsis*, Willd. Stamina 4; antherarum loculi paralleli. Spicæ breves bracteis membranaceis mollibus vestitæ.

\*\*\* *Ruellineæ*. Calyx 5-fidus, segmentis magis minusve inæqualibus. Corolla infundibuliformis. Stamina 4; raro 2. Capsulæ magis minusve 4-gonæ, cum v. absque basi contracta sterili.

9. *Ruellia*, L.

10. *Hemigraphis*, N. E.

11. *Strobilanthes*, Bl.

} Genera inter se valde affinia postea a me accuratius eruenda.

Trib. 3. ERANTHEMÆ. Calyx regularis, 5-dentatus v. 5-fidus. Stamina 2, raro 4; antheræ 2-loculares, loculis parallelis. Capsulæ 2-4-spermæ, in basin longam sterilem contractæ. Semina compressa, retinaculis uncatis suffulta.

○ Spicæ v. paniculæ nudæ, i. e. bracteis minutis, persistentibus.

12. *Asystasia*, Bl. Corolla infundibuliformis, in tubum longiusculum v. rarius longissimum attenuata. Flores omnes fertiles. Capsulæ vulgo 4-spermæ.

13. *Eranthemum*, L. Flores 2-5-morphi, fertiles minuti, clausi v. aperti; steriles speciosi, hypocraterimorphi, limbo subregulari tuboque longissimo.

○○ Spicæ foliaceo-bracteatae, bracteis nonnunquam deciduis.

14. *Daedalacanthus*, T. And. Corolla contorta, hypocraterimorpha, limbo regulari explanato v. complicato, capsulæ vulgo 4-spermæ.

15. *Ecbolium*, Kurz. Corolla imbricata, hypocraterimorpho-bilabiata limbo irregulari, labio superiori reflexo lineari. Capsulæ vulgo 2- raro abortu 1-spermæ, (ovuli in ovarii loculis semper 2).

Trib. 4. JUSTICIEÆ. Calyx regularis. Corolla ut plurimum ringens v. bilabiata. Stamina 2; antheræ 2-loculares, loculis superpositis. Capsulæ compresso 4-gonæ, in basin sterilem contractæ. Semina plana, retinaculis uncatis suffulta.



- O Corollæ tubus longus, gracilis, limbi lobos longitudine superans.
16. *Rhinacanthus*, *N. E.* Limbi labium superius angustum, erectum. Antherarum loculi haud calcarati.  
OO Corollæ ringentis tubus brevis.
17. *Justicia*, *L.* Antherarum loculi inferiores basi mucronati et calcarati. Capsulæ dissepimenta persistentia.
18. *Rungia*, *N. E.* Characteres præcedentis, sed capsulæ dissepimenta a valvis secedentia.  
OOO Corolla bilabiata, tubo gracili longitudine loborum v. brevior.
19. *Dicliptera*, *Juss.* Capsulæ dissepimenta a valvis secedentia.
20. *Peristrophe*, *N. E.* Capsulæ dissepimenta persistentia.

Trib. 5. APHELANDREÆ. *Calyx regularis.* Corolla bilabiata, Stamina 4; *antheræ 1-loculares*, lineares v. oblongæ. Capsulæ vulgo a basi seminifera. Semina plana, retinaculis uncatis suffulta. Fere omnes Americanæ, inter Indica genus unicum (*Hypæstes*) hic rite referendum, cætera genera hic relata abnormalia esse videntur, viz. *Monothecium* (*Justiciæ* sect. *Rostellariæ* nimis affine) et *Hypæstes triflora*, Roem. et Schult., calyce a congeneris valde discrepans potius generi *Diclipteræ* adnumeranda, v. generis novi typum præbens. *Haplanthi* genus infra inter *Hygrophileas* quærendum.

- Trib. 6. HYGROPHILEÆ. *Calyx regularis v. irregularis, 5-fidus v. -dentatus.* Corolla bilabiata ringens. Stamina 2 v. 4; *antheræ 2-loculares*, loculis parallelis. *Capsulæ planiusculæ v. cylindricæ, sæpius striatæ, sulcatæ v. medio impressæ, a basi seminiferæ.* Semina compressa, retinaculis uncatis suffulta.
- O Corolla infundibuliformis et subringens. Capsulæ cylindricæ v. subcylindricæ. Stamina 4 v. 2.
21. *Phlogacanthus*, *N. E.* Capsulæ 8- $\infty$ -spermæ; stamina 4, fertilia.
22. *Cystacanthus*, *T. And.* Characteres præcedentis, sed stamina fertilia 2, cum 2 rudimentariis.
23. *Graptophyllum*, *N. E.* Capsulæ 4-spermæ. Stamina 4, omnia fertilia.  
OO Corolla ringens. Stamina 2. Capsulæ planiusculæ, sursum sæpius latiores.  
\* *Antheræ* basi sæpius barbatae v. villosæ. Racemi v. paniculæ nudæ.
24. *Andrographis*, *Wall.* *Antheræ 2-loculares.*



25. *Haplanthus*, N. E. Antheræ 1-loculares.  
 \*\* Antheræ nudæ.
26. *Hemiadelphis*, N. E. Spicæ conspicue bracteatae.  
 OOO Corolla bilabiata v. ringens. Stamina 4. Capsulæ magis minusve teretes, sæpius sulcatae.
27. *Hygrophila*, R. Br. Calyx tubulosus, regularis. Corolla bilabiata.
28. *Nomaphila*, Bl. Calyx usque ad basin 5-fidus. Corolla ringens.

Trib. 7. NELSONIÆ. Calyx 5-fidus, ut plurimum subirregularis. Corolla infundibuliformis v. personata. Stamina 2 v. 4; antheræ 2-loculares, loculis parallelis. Capsulæ a basi seminifera. Semina minuta, globosa, retinaculis glanduliformibus suffulta, v. iis omnino deprivata.

O Stamina 2.

29. *Nelsonia*, R. Br. Corolla ringens.  
 OO Stamina 4.
30. *Ebermaiera*, N. E. Corolla ringens.
31. *Cardianthera*, Ham. (*Adenosma*, N. E. non R. Br). Corolla personata.

### VERBENACEÆ.

#### 201. VITEX CANESCENS, nov. sp.

Arbuscula 25—35 pedalis, partibus omnibus junioribus canescenti v. gilvescenti-pubescentibus; folia digitatim 3—5—foliolata, petiolo 1—2—pollicari tomentello suffulta; foliola sæpius breve (intermedio multo longius) petiolulata, ovata v. ovato-lanceolata, ad elliptica et elliptico-lanceolata, acuminata v. acuta, basi attenuata, integra, v. raro crenato-serrata, membranacea, juniora utrinque dense canescenti-pubescentia, supra denuo scabrescenti-puberula; flores albi, parvi, pedicellis gracilibus 1—2 lin. longis tomentellis suffulti, glomerati, paniculas cinereo- v. gilvescenti-tomentellas compositas v. simplices terminales et supra foliorum delapsorum ortas efficientes; calyx cinereo-pubescent, lin. circiter longus, 5-dentatus; corolla calyce duplo longior, extus tomentosa; drupæ obovoideæ, læves, pisi magnitudinis, calyce magis minusve explanato insidentes.—*Prome. V. Negundo*, L., affinis, differt in primis floribus graciliter pedicellatis.

### LAURINEÆ.

#### 202. MACHILUS FRUTICOSA, nov. sp.

Frutex glaber, gemmis velutinis; folia ovato ad ovato-oblonga, 2½—4 poll. longa, basi rotundata subdecurrentia, petiolo crasso lato 2—5 lin. longo, glabra, rigide coriacea, obtusa et passim rotundata, marginibus recurvis, subtus glauca, nervis, simul cum reticulatione copiosa, prominentibus;



flores... ; paniculae folio longiores, glabrae, longe-pedunculatae ; pedicelli sub fructu brevissimi (1—1½ lin. longi) et incrassati uti in *Phaëbe* ; perianthium minute adpresse pubescens, segmentis patentibus oblongis obtusis ; fructus globosi, glabri, pisi magnitudinis.—*Martaban* (Dr. Brandis).

203. *TETRANTHERA* (CYLICODAPHNE) *CALOPHYLLA*, nov. sp.

Arbuscula, novellis fulvescenti-tomentellis ; folia ovato-oblonga ad lanceolata, basi acuta v. acuminata, longius v. brevius acuminata, petiolo ½—1 poll. longo magis minusve tomentoso suffulta, rigide membranacea, 3½—7 poll. longa, supra lutescenti-viridia et (costa immersa excepta) glabra, subtus pallida, tomentella, penninervia, prominenter reticulata ; flores in umbellam parvam bracteatum congesti ; umbellae pedunculo 2½—3½ lin. longo tomentello solitario axillari suffultae v. secus ramulum novellum axillarem fulvo-tomentosum quasi racemiformem digestae, raro in racemum verum brevem corymbiformem pedunculo fulvescenti-puberulo suffultum efformantes ; involucri foliola concavo-rotunda, puberula ; perianthium extus pubescens ; filamenta glabra ; antherae 4-locellatae ; baccae oblongo-ovatae, ½ poll. fere longae, laeves, carnosae, cupulâ majusculâ truncatâ extus minute pubescenti in pedicellum brevem crassum attenuatâ suffultae.—*Martaban, Tenasserim.* Species quoad folia et inflorescentia variabilis, *Cylicod. Wightianae, N. E.*, arcte affinis ejusve probabiliter varietas insignis ?

204. *TETRANTHERA* (CYLICODAPHNE) *NUCULANEA*, nov. sp.

Frutex ramulis teretibus tomentosis ; folia obovato-oblonga ad oblongo-lanceolata, petiolis 4—5 lin. longis pallide-tomentosis suffulta, basi acuta, 5—6 poll. longa, obtusiuscule apiculata, crasse chartacea, supra glabra, subtus glauca et plus minusve dense puberula, reticulatione inter nervos laterales crassiusculos tenui sed conspicua ; flores . . , apparenter umbellas subsessiles axillares formantes ; pedunculus in speciminibus fructigeris crassissimus vix 3 lin. longus ; fructus pallide straminei, oblongi, c. 6—7 lin. longi, laeves, cupula integra magna carnosâ suffulti.—*Tenasserim.* (Revd. Parish).

205. *TETRANTHERA* (CYLICODAPHNE) *ALBICANS*, nov. sp.

Arbuscula, novellis minute puberulis ; folia oblongo-lanceolata ad lanceolata, basi attenuata, petiolo 5—8 lin. longo gracili subglabro suffulta, breve acuminata, chartacea v. tenuiter coriacea, 6—10 poll. longa, glabra, subtus albida, reticulatione inter nervos tenues prominentes tenui sed conspicua ; umbellae involucreatae, velutino-tomentosae, pedunculo gracili c. 4 lin. longo canescenti-tomentoso suffulti, in racemum abbreviatum v. subsessilem velutino-tomentosum axillarem v. vulgo supra foliorum delapsorum cicatricibus orientem dispositae ; involucri phylla canescenti-velutina ; fructus . . ; cupula



magna, carnosae, undulato-lobatae, in pedicellum crassum attenuata. — *Pegu.*  
Ex affinitate *T. Panamojae*, *N. E.*

206. *LITSEA LEIOPHYLLA*, nov. sp.

Arbor inflorescentiis exceptis glaberrima; folia lanceolata v. oblongo-lanceolata, 5—6½ poll. longa, basi subinaequali acuminata, petiolo gracili 1—1½ pollicari glabro suffulta, obtuse acuminata, tenuiter coriacea, glaberrima, supra lucida, subtus vix glaucescentia, supra basi triplinervia et penninervia, obsoletissime reticulata; flores fulvo-villosi, pedicellis brevibus tomentosus suffulti, racemos axillares petiolo breviores abbreviatis fulvo-villosos simplices formantes; filamenta glabra; baccæ desunt. *Tenasserim* v. *Andamans.* (Helf. 4330).

207. *DAPHNIDIUM ARGENTEUM*, nov. sp.

Arbor parva, novellis argenteo-sericeis; folia lanceolata v. lato-lanceolata, utrinque acuminata, petiolo 3—5 lin. longo argenteo-pubescente glabrescente suffulta, 3½—6½ poll. longa, crasse chartacea, supra glabra, subtus adpresse argenteo-sericea, penninervia, utrinque laxè reticulata; flores virescenti-lutei, pedicellis brevissimis tomentosus, in racemum brevem tomentosum basi bracteis concavis pubescentibus involucreto digesti; perianthium 6-fidum, extus adpresse pubescens; antheræ 2-locellatæ; filamenta subglabra. — *Pegu, Martaban.* — Species insignis, foliorum structura et habitu *Beilschmiedia* genus in mentem revocat.

*PROTEACEÆ.*

208. *HELICIA PYRRHOBOTRYA*, nov. sp.

Arbor?, novellis ferrugineo-villosis; folia obovato-lanceolata, breve acuminata, versus basin obtusam attenuata, c. pedem longa, petiolis crassis 2—5 lin. longis suffulta, chartacea, grosse serrata, adulta glabra v. subtus secus costam sparse ferrugineo-pubescentia; flores 1—1¼ poll. longi, geminati, pedicellis crassis 1½ lin. longis ferrugineo-villosis suffulti, racemos c. pedem longos robustos dense ferrugineo-villosos axillares efficientes; squamulæ hypogynæ ...; ovarium stylusque læves. *Martaban*, (Dr. Brandis).

*PODOSTEMACEÆ.*

209. *HYDROBRYUM LICHENOIDES*, nov. sp.

Plantulæ minutæ gregarie; rhizoma latum membranaceum, lobatum, terræ v. saxi adpressum, viride, vix ½ lin. latum, 2—3 lin. longum; folia perpauca tantum pedicellorum basi sita, squamæformia; pedicelli filiformes, ½ lin. longi; capsulæ globosæ, c. ¼ lin. in diametro, lato-8-costatæ. — *Martaban.* (Revd. Parish).



## URTICACEÆ.

## 210. ELATOSTEMA MEMBRANIFOLIUM, nov. sp.

Suffrutex erectus, ramosissimus, *E. lineolati* habitu, glaberrimus, ramulis 4-quëtris, lævissimis; folia alterna, subinæqualia, cum basi inæquali sessilia,  $1\frac{1}{2}$ — $2\frac{1}{2}$  poll. longa, acuminatissima (acumine obtuso et integro), tenuiter membranacea, grosse et obtusiuscule crenato-serrata, utrinque lævia et striis destituta, basi irregulari-triplinervia, nervis tenuibus sed conspicuis, per nervos laterales strictis rectangulares cum costa anastomozantibus; stipulæ minutæ, subulato-lineares; flores minuti, sessiles, capitula (nondum evoluta) parva sessilia in foliorum axillis v. iisdem opposita formantes; perianthium glabrum.—*Tenasserim*, (Dr. Brandis)—*E. lineolato*, Wight, arete affine, absentia striolarum autem tute distinguendum.

## 211. ELATOSTEMA BULBIFERUM, nov. sp.

Herba monoica v. dioica, erecta,  $\frac{1}{2}$ —1 pedalis, succulenta, simplex v. sub-ramosa, glabra, caulibus teretibus ad internodia bulbiferis; folia opposita, dimorpha, quorum evoluta obliqua, ovata v. ovato-lanceolata, petiolis vix lin. longis suffulta, superiora cum basi inæquali subsessilia,  $2\frac{1}{2}$ — $3\frac{1}{2}$  poll. longa, grosse serrata, herbacea, breve acuminata, glabra, supra striis albis adnatis obtecta, basi triplinervia, passim nervis nonnullis adjectis; folia stipuliformia, lanceolata ad ovato-lanceolata, magis variabilia,  $\frac{1}{4}$ — $\frac{1}{2}$  poll. longa, acuta v. obtusa, integra v. serraturis nonnullis, inferiora vulgo majora; stipulæ minutæ, subulatæ; flores minuti, pedicellati, cymosi; cymi feminei densiores et pedunculis gracilibus brevioribus suffulti; masculi laxi, pedunculo 1—2 pollicari suffulti e tuberibus globulosis crassis axillaribus v. in ramulorum furcationibus sitis subvillosis orti; perianthium glabrum.—*Tenasserim*, *Arracan*.

212. ELATOSTEMA GIBBOSUM, (*Procris gibbosa*, Wall., Cat. 7273).

Herba procumbens, repens, glabrescens, caulibus ascendibus c. semipedalibus florigeris; folio alterna, obovato-oblonga ad trapezoideo-oblonga, subobliqua, cum basi oblique-cordata subsessilia, obtusa v. subobtusa, 2—3 poll. longa, herbacea, grosse rotundato-crenata, supra pilis brevibus albis transverse adnatis adspersa, subtus secus nervos parce pubescentia, basi 3—5—plinervia; stipulæ conspicuæ, membranacæ, brunneæ, usque ad 3 lin. longæ, lanceolatæ, acuminatæ, persistentes, etiam eæ foliorum abortivorum evolutæ; flores masculi majusculi, c. 1 lin. in diametro, subsessiles, in cymam parvam pedunculo  $1\frac{1}{2}$ —2 poll. longo pubescente axillari suffultam collecti; perianthium glabrum.—*Martaban*, *Tenasserim*.—In vicinitate *E. cornuti* ponendum; an potius generi *Pellionia* adscribendum?

## 213. DORSTENIA GRIFFITHIANA, nov. sp. (D. sp. Griff. Not. Dicot. 403).



Frutex humilis, ramulis angularibus ochraceo-pubescentibus; folia elongato-obovata ad cuneato-elliptica, petiolo crasso  $\frac{1}{2}$ — $\frac{3}{4}$  pollicari pubescente glabrescente suffulta, basi angustata acuta v. rotundata, 8 poll.— $1\frac{1}{4}$  ped. longa, abrupte acuminata, tenuiter coriacea, integra, supra lævia, subtus scabra; stipulæ setacæ, pubescentes; flores monoici, in receptaculis capituliformibus involucriatis extus velutinis pedunculatis congregati; pedunculi velutini solitarii, axillares; involucrum sub 4—6 partitum; syncarpia dimorpha, involucri bracteis reflexis velutinis.—*Tenasserim.*

214. *FICUS AFFINIS*, Wall., Cat. 4524.

Arbor mediocris, glabra; stipulæ breves, et parvæ, ovato-lanceolatæ, glabræ; folia elliptica ad ovato-oblonga, basi obtusa v. rotundata, obtusiuscule et subabrupte acuminata, 3—4 poll. longa, chartacea, integra v. subundulata, glabra, basi nonnunquam obscure 3-nervia, nervis lateralibus numerosis et subparallelis secus marginem anastomozantibus, utrinque crebre reticulata; receptacula piperis grani magnitudine v. paullo majora, globosa; flavescentia, pustulis obsoletis aurantiacis adspersa, glabra, basi 3-bracteata, pedunculo brevissimo  $\frac{1}{2}$ —1 lin. suffulta, vulgo geminata in foliorum axillis v. supra foliorum delapsorum cicatricibus; bracteæ persistentes, minutæ, lato-triangulares.—*Pegu, Tenasserim, Andamans.*—Prope *F. rhododendrifoliam*, Miq., inserenda.

215. *FICUS GENICULATA*, nov. sp.

Arbor magna epiphytica, ramulis robustis cicatrisatis novellis pubescentibus; stipulæ lato-ovatæ, acutæ, glabræ v. canescentes; folia elliptica, elliptico-ovata v. elliptico-oblonga, petiolo 3—4 pollicari apice geniculato inserta, basi obtusa v. acuta, breve et abrupte acuminata v. apiculata, integra, rigide coriacea, utrinque lucida, basi breve 3-nervia, nervis lateralibus subparallelis et magis approximatis sæpius subobsoletis, reticulatione elegante magis minusve obsoleta raro conspicua percursa; receptacula globosa, pisi minini v. piperis grani magnitudine, flavida, albo-pustulata, glabra, 3—4 bracteata, sessilia v. subsessilia, in foliorum axillis v. supra eorum cicatribus geminata; bracteæ persistentes, lato-rotundatæ, brunneæ, glabræ.—*Pegu, Martaban, Tenasserim.*—Ex affinitate *F. infectoriæ*, Willd.

216. *FICUS INSIGNIS*, nov. sp.

Arbor mediocris, ramulis crassis cicatrisatis tomentellis; stipulæ lato-ovatæ tomentosæ; folia iis *F. geniculatæ* subconsimilia, elliptica ad ovato-oblonga, petiolo 2—3 poll. longo apice geniculato suffulta, basi rotundata v. obtusa, 5—7 poll. longa, obtuse apiculata, integra v. subundulata, glabra, rigide coriacea, supra lucida, nervis lateralibus subparallelis et moderate approximatis, secus marginem arcuato anastomozantibus, subimpressis, reticulatione elegante vix prominente; receptacula, cerasi nfinimi magnitudine,



globosa v. subglobosa, cinerascenti albida, roseo-punctata, dense tomentoso-villosa, basi bracteata, pedunculo crasso brevissimo tomentoso suffulta, in foliorum axillis v. supra eorum cicatricibus vulgo geminata; bracteæ persistentes, lato-ovatæ, scariosæ, brunneæ, glabræ.—*Prome.* Præcedenti affine.

217. *FICUS CALONEURA*, nov. sp.

Arbor glabra; folia iis *F. Rumphii* consimilia, cordato-ovata, sensim obtusiuscule-acuminata, basi cordata, petiolo 3—4 poll. longo apice geniculato bi-glanduloso suffulta, 4—5 poll. longa,  $2\frac{1}{2}$ — $3\frac{1}{2}$  poll. lata, grosse et remote repando-dentata, tenuiter coriacea, glabra, utrinque opaca, supra haud punctata, nervis lateralibus unacum nervis basilaribus omnibus divergentibus et subarcuatis pallidis crassis secus marginem anastomozantibus, nervatione transversali elegante sed tenuiuscula; receptacula desunt.—Burma, sine loco natali, (Dr. Brandis).—Ex affinitate *F. Rumphii*, Bl.

218. *FICUS POMIFERA*, nov. sp.

Frut. x scandens, glaber; folia obovata v. sub-rhomboido-obovata, petiolis 3—4 lin. longis scabridis, basi subcuneata, 1— $2\frac{1}{2}$  poll. longa, obtusa v. subemarginata, glabra, coriacea, marginibus subrecurvis, nervis utrinque 4—5 lateralibus paullo prominentibus, in areolis reticulationis obsoletæ lacunosopunctata; receptacula pomiformia v. oblongo-elliptica, c. 1— $1\frac{1}{4}$  poll. crassa, subumbonata, in stipitem brevissimum (c.  $\frac{1}{2}$  lin.) crassum constricta, lævia, miniato-aurantiaca, pedunculo crasso 1—2 lin. longo puberulo suffulta, vulgo solitaria e foliorum axillis v. supra eorum cicatricibus; bracteæ ad pedunculi apicem 3, persistentes, triangulari-ovatæ, subglabræ. Variat.  $\alpha$ . pomiformis, receptacula pomiformia,—*Tenasserim*, (Falconer);  $\beta$ . oviformis, receptacula elliptico-oblonga ad ovoidea,—*Sumatra*.

219. *FICUS PYRRHOCARPA*, nov. sp. (*F. tuberculata*, Wall., Cat. 4539, non Roxb. et aliorum).

Frutex humilis, 1—3 pedalis, ramulis adpresse brunneo-setosis; stipulæ lineari-lanceolatæ, acuminatæ, glabriusculæ v. dorso pubescentes; folia obverse lanceolata ad subcuneato-lanceolata, basi cuneata v. acuta, petiolo lineas perpaucas usque ad  $1\frac{1}{2}$  poll. longo adpresse pubescente glabrescente suffulta, breve et obtusiuscule acuminata, integra, crasse membranacea, supra glabra v. pilis minutis inconspicuis adpersa, subtus secus nervos sparse adpresse hirsuta et glabrescentia, nervis arcuatis, reticulatione laxa; receptacula depresso-pyriformia, cerasi magnitudinis, purpurascenti-viridia, costata, squamis nonnullis varie dispositis adpersa, præsertim dum juvenilia pilis rigidis adpressis v. subpatentibus brunneis v. rufis oblecta, pedunculis  $\frac{1}{4}$ — $1\frac{1}{4}$  pollicibus pubescentibus crassis suffulta, solitaria e trunco subterraneo orta v.



secus surculos aphyllis subterraneos errumpentia ; bractæ ad apicem pedunculi 3, ovatæ, breves.—*Pegu, Martaban.*—Ex affinitate *F. ischnopodæ*, etc.

219. *FICUS ANASTOMOZANS*, Wall., Cat. 4513.

Frutex repens, humilis, magis minusve scabro-pubescentia ; stipulæ minutæ, scabræ ; folia oblongo-lanceolata ad lanceolata, basi acuta v. obtusa, petiolo 2—6 lin. longo scabro-pubescente suffulta, magis minusve obtusiuscule-acuminata, 2—4 poll. longa, grosse et irregulariter sinuato-dentata, dentibus rotundatis v. obtusis, membranacea, supra scabro-pubescentia, nonnunquam subglabrescentia, nervis numerosis rectangulari-divergentibus et anastomozantibus ; receptacula ovoidea, piperis grani magnitudinis, umbonata, basi non v. vix constricta, scabro-puberula, pedunculo vix  $\frac{1}{2}$  lin. longo et pubescente suffulta, solitaria e foliorum axillis v. supra eorum cicatricibus errumpentia ; bractæ minutæ.—*Tenasserim.*

220. *FICUS LEPIDOSA*, Wall., Cat. 4541.

Arbor mediocris, novellis parce pubescentibus ; stipulæ lineari-lanceolatae, acuminatissimæ, glabræ v. subglabræ ; folia obovata ad elliptica, petiolis 1—2 poll. longis parce pubescentibus glabrescentibus suffulta, basi obtusa, breve acuminata, 5—6 poll. longa, crasse membranacea, supra glabra v. pilis nonnullis brevibus adspersa, subtus parce et breve pubescentia, subpenninervia ; receptacula turbinato-globosa, umbonata, pubescentia, aurantiaco-miniata, cerasi magnitudine, pedunculo 3—5 lin. longo crasso pubescente sustenta, vulgo geminatim e foliorum axillis v. supra eorum cicatricibus erumpentia ; bractæ ad apicem pedunculi, ovatæ, acutæ, glabræ, c. lin. longæ.—*Pegu.*—*F. chrysocarpæ*, Rwdt., affinis, errore quoddam cl. Miquel in Annalis suis me hanc speciem cum *F. diversifolia* identicam declarasse putavit.

*AMENTACEÆ.*

221. *QUERCUS EUMORPHA*, nov. sp.

Arbor 20—30 pedalis, glaberrima ; folia ovato-oblonga v. oblonga, nonnunquam inæqualia, basi in petiolum gracilem 5—8 lin. longum glabrum attenuata, breve et obtusiuscule acuminata, 3—4 poll. longa, coriacea, apicem versus leviter obtusiuscule serrata, glabra, concoloria, nervis tenuibus et reticulatione densa subobsoletis ; pedunculus fructiger usque ad 2 poll. longus, apparenter glaber, 1 v. 2 fructus gerens ; glans ovoidea, 9—10 lin. fere longa, lævis, exserta ; cupula 7—8 lin. in diametro, concava, crasse coriacea, brunnea, glabra, subverniosa, junior squamis triangularibus acutis adpressis subdistinctis dein in zonas concentricas angustas inæquales et irregulares confluentibus oblecta v. rugato-rugosa.—*Martaban.*



222. *QUERCUS BRANDISIANA*, nov. sp.

Arbor parva v. mediocris, ramulis canescenti, v. ochraceo-pubescentibus; folia oblonga ad obovato-oblonga, basi sæpius inæquali acuta v. obtusa, 4—5 poll. longa, petiolo 5—8 lin. longo gracili glabro suffulta, breve et obtusiusculè acuminata, obtusiuscule repando-serrata, utrinque subopaca, tenuiter coriacea, supra rugata et glabra, subtus glauca et fugaci-puberula, nervis supra impressis strictis subtus prominentibus sed tenuibus, cum nervatione transversa conspicuis; pedunculus fructiger c. 1, raro usque  $2\frac{1}{2}$  poll., longus, fructus paucos tantum gerens, ochrascenti-tomentosus; glandes juniores depressæ adpresse puberulæ, magis minusve inclusæ, dein exsertæ, ovoides, glabræ; cupula canescenti-velutina, concava, c.  $\frac{1}{2}$  poll. in diametro, e zonis circ. 5—6 concentricis lamellatis erosis formata.—*Martaban*.—In sect. *Cyclobalani* inserenda.

*CHLORANTHACEÆ.*223. *CHLORANTHUS INSIGNIS*, nov. sp.

Suffrutex  $1\frac{1}{2}$ —2 pedalis, glaber, in sicco sublutescens; folia petiolis 1—2 lin. longis suffulta, linearia, basi acuminata v. acuta, sensim et longissime acuminata,  $3\frac{1}{2}$ — $4\frac{1}{2}$  poll. longa, subcoriacea, integra, glabra, nervis lateribus tenuissimis, vix reticulata; spicæ axillares, fructiferae 1—2 poll. longæ, simplices, glabræ; bractea minutæ, crassæ; fructus casi.—*Martaban*.

*SCITAMINEÆ.**HEMIOCHIS* nov. sp.

Flores præcoces, spicati, sessiles. Calyx tubulosus, sursum ampliatus, 3-fidus. Perianthii tubus calyce brevior filiformis; phylla 3 exteriora æqualia, interiora subæquilonga, basi utrinque corniculata apice 2—3 denticulata; labellum lato-oblongum, concavum, apiculatum. Filamentum phyllis fere duplo brevius, apice incurvum, connectivam supra anthera utrinque mutica vix productum. Ovarium 1-loculare, placentis 3 parietalibus; stylus filiformis; stigma paullum incrassatum, oblique truncatum. Capsula 1-locularis, subplicato-10-sulcata, 3-valvis; semina conica, basi albo-arillata.—Herbæ perennes *Gastrochilo* habitu et characteribus essentialibus affines; scapis radicales pallidi squamati iis *Geodori* haud absimiles.

224. *H. BURMANICA*, nov. sp. Tab. VIII.

Rhizoma album, crassum, repens, hypogæum, nudum; folia post anthesin erumpentia iis *Gastrochili* simillima, lato-oblonga, brevissime acuminata, basi inæquali-rotundata in petiolum brevem decurrentia, glabra; vaginae striatæ, glabræ; scapi radicales, solitarii, dense tomentelli, a basi usque ad medium bracteis amplis pallidis remotis v. confertis 1— $1\frac{1}{2}$  poll. longis oblongis et subacutis vestiti; flores spicati, sessiles, mediocres; calyx puberulus, albus,





3-fidus, lobis æqualibus acutis; perianthii phylla exteriora 3 fere semipollinaria, virescenti-albida, oblongo-linearia, apiculata v. 2—3 lobulata, marginibus magis minusve recurva, superiori latiore; interiora 2 obovato-oblonga, pallide rubella, apice obsolete 2—3 denticulata; labellum concavum lato oblongum, aurantiacum, basin versus pallidius, intus secum carinam sanguineum carinatum, carina in apiculum 3-angularem acutum excurrente; antheræ cerino-luteæ, filamenta c. 1 lin. longa, incurva; capsulæ ovales, puberulæ, calyce emarcescente coronatæ, c.  $\frac{1}{2}$  poll. longæ; semina basi arillo albo suffulta.—*Pegu, Martaban, Tenasserim.*

### MELANTHACEÆ.

STEMONA GRIFFITHIANA, nov. sp. Tab. X.

(Gen. nov., Griff. Journ. of Travels p. 149).

Herba erecta, perennis, glabra, rhizomate crasso hypogæo; folia hysteranthia, ovata, c. 3—5 poll. longa, breve acuminata, petiolo 3—5 poll. longo suffulta, chartacea, glabra, parallelinervia, eleganter transverse venosa, sericanter-nitentia; flores virescenti v. sordide purpurei, pedicellis strictiusculis poll. circiter longis suffulti, in turionibus erectis aphyllis scapiformibus dein foliatis 3—6 poll. longis corymboso-racemosi; bractæ lineari-lanceolatæ acuminatæ, c. 3—4 lin. longæ; perigonium 4-phyllum, phylla poll. longa, v. paullo longiora, lineari-lanceolata, acuta; stamina 4, filamenta lata, purpurea; antheræ aureæ, cuspidatæ; ovarium 1-loculare, ovulis 6, lineari-oblongis ex apice pendulis capsulæ compresso-ovatæ, semipollicares, bivalves, 3—4 spermæ; semina sulcato-carinata, lineari-oblonga, subapiculata, basi arillo brevi albo aucta.—*Ava, Martaban, Pegu.*

### AROIDEÆ.

HAPALINE, Schott.

Spatha lanceolata sursum plana, basi tantum complanata et spadiceis parti femineæ adnata. Spadix interrupte androgynus, genitalibus rudimentariis nullis. Stamina lineari-lanceolata, peltata, membranacea, areolato-reticulata, subtus marginem versus antheras 4—6 minutas globosas gerentia, spadicem linearem a parte feminea paullo discretum obtegentia. Ovaria singula serie superposita, unilocularia, ovulo solitario erecto; stigma subsessile, subcapitatum.—Herbæ humiles, radice tuberosa, uni- v. pauci-foliatæ, spathas niveis.

1. H. BENTHAMIANA, Schott. Tab. IX.

Herba c. semipedalis, radice tuberosa, basi albo-vaginata; folia 3—4 poll. longa, petiolo æquilongo suffulta, oblonga, basi profunde sinuato-cordata, lobis basilaribus complicatis et obtusiuscule prolongatis, glabra, breve acuminata, nervis anastomozantibus; flores 1—3-ni e rhizomate pro-



trusi, scapo 5—6 poll. longo gracili suffulti; spatha nivea, lineari-lanceolata ad lanceolata, c.  $1\frac{1}{2}$  poll. longa, reflexa, reticulata; spadix spathæ fere longitudinis, ejus pars mascula exserta strictiuscula lineari-subulata, alba.—*Martaban.*

#### TABULARUM EXPLANATIO.

Tab. VIII.—*Hemiorchis Burmanica*.—Fig. A, planta florens, magn. nat.; fig. B, folium cum cauli vaginato, magn. nat.; fig. 1, perigonii phyllum exterioris; fig. 2, phyllum exterius superius; fig. 3, perigonii phyllum interius laterale; fig. 4, labellum cum carina, a latere visum; fig. 5, anthera a latere visa; fig. 6, eadem a fronte; fig. 7, capsula, magn. nat.; fig. 8, semen, arillo remoto.

Tab. IX.—*Hapaline Benthiana*.—Fig. A, planta, magn. nat.; fig. 1, spadix; fig. 2, ovarium; fig. 3, sectio verticalis fructus, semen immaturum exhibens; fig. 4, squama staminalis antheras gerens, a latere interiore visa.

Tab. X.—*Stemona Griffithiana*.—Fig. A, planta florens; fig. B, caulis foliati pars superior; fig. C, racemus fructiger; fig. 1, perigonii phylla 2 cum stamine; fig. 2, semen cum arillo, latere visum; fig. 3, capsula aperta, semina exhibens; figuræ omnes magn. nat.

Errores graviores in parte priori (J. A. S. B., vol. XLI, pt. II), corrigendi.

Page 311. lin. 6. infra pro *apicibus* lege *apices*.

Pag. 312. lin. 10. supra pro *pomini* *majoris magnitudine* lege *pomi minoris magnitudine, brunneo-velutinæ*.



NOTES ON SOME SPECIES OF MALAYAN AMPHIBIA AND REPTILIA,—  
by DR. F. STOLICZKA.

(Received 15th Feb. 1872; read 5th March, 1872.)

[With plate XI.]

It is nearly three years ago that I had the pleasure of submitting to the Society a few notes on Indo-Malayan Reptiles and Amphibians, chiefly collected by myself along the Burmese and Tenasserim coasts, about Penang and on the Nicobar and Andaman islands. When visiting Penang in 1869, I received information of a tolerably extensive\* collection of Reptiles, brought together by a zealous Jesuit during a residence of about twenty years on the island. The specimens were collected either on Penang itself or on the opposite coast of the Wellesley Province. A very large number had been captured alive, and coloured drawings, taken from most of the live specimens, had been prepared. The colouring appeared to me to have been faithfully copied, and this it was which particularly excited my interest in the collection, because in many cases the colours of Reptiles fade most rapidly, as soon as the specimens are placed in spirit; in others the colouring changes immediately after death, and again some alter even during life their colour, as soon as they become conscious of their captivity. In any case the coloured sketches from life seemed to me valuable and I, therefore, resolved to buy the collection.

As soon as the formal matters were arranged, the collection of the specimens was transmitted to me, the drawings, however, were afterwards not considered to form an essential part of it, and were handed over to some one else, according to a wish of the deceased gentleman under whose supervision they were executed. After a brief correspondence it did not appear to me much use treating further about the subject. My interest in the collection has, on that account naturally enough, partly diminished, and having had other more pressing work to attend to, the specimens were for more than two years left unnoticed. More recently my friend Mr. Stahlknecht of Singapore visited Sumatra, and made for me a very nice little collection of Reptiles, most of which were in a beautiful state of preservation. This circumstance induced me to look over my old acquaintances, and to prepare a critical list of all of them. In the old collection I only found two new species, a *Rana* and a *Simotes*, a specimen of the latter had very recently been also obtained by Mr. J. Wood-Mason's collector at Jahore, situated at the extreme south end of the Malayan Peninsula, north of Singapore island. Mr. Stahlknecht's collection yielded a new *Calamaria*.

\* This refers to the number of specimens, but not to that of species, as I subsequently discovered.



Thus, although I cannot say, that I came into possession of a great number of new forms, there are among those, which I shall place on record, a few rare and very interesting species, some of which were previously known only from single specimens, and these often were not very perfect. I may mention for instance *Draco quinquefasciatus*, *Podophis chalcides*, *Ophites subcinctus* and *albofuscus*, *Ablabes flaviceps*, *Oxycalamus longiceps*, &c.

I shall first enumerate all the species, and attach an (\*) asterisk to those, about which I shall have to say a few words.

The collection was made, as I said, to a large extent on Penang itself or in the Wellesley Province, and judging from the examination of it, I have found no reason to doubt in any way this statement. A great many of the same species had been collected by myself in that part of the country on a former occasion, others were known to occur there from the very elaborate and extensive researches of Dr. Cantor; others again had been recorded from Malacca, Singapore, Sumatra or Java, all countries which belong to the same zoological province, and which have a large number of species common. I have not met with a single instance which would lead me to suspect, that any mixture of other distant localities had taken place. Thus the present list in connection with that of Drs. Cantor, Gray and Günther, and my own published in 1870, may be considered as fairly completing the number of Reptiles and Amphibians, inhabiting Penang and the neighbouring Wellesley Province. Mr. Stahlknecht's specimens are from the neighbourhood of Dilli on Sumatra. In the general list I shall briefly note the localities as *Penang* and *Sumatra*.

#### BATRACHIA.†

1. *Rana tigrina*, var. *pantherina*, Fitz. apud Steindachner. (Novara Amphibiens).—*Penang*.
- 2.\* „ *fusca*, Blyth.—*Penang*.
3. „ *lymnocharis*, Boie (= *gracilis*, Wiegman.); typical.—*Penang*.
- 4.\* „ *lymnocharis*, var. *pulla*, Stol.—*Penang*.
- 5.\* „ *plicatella*, n. sp.—*Penang*.
6. *Polypedates maculatus*.—*Penang*.
7. „ *quadrilineatus*.—*Penang* and *Sumatra*.
8. *Hylarana erythraea*.—*Penang* and *Sumatra*.  
Comp. Proceed. A. S. B. for June, 1872, p. 104. The largest specimen measures: body 3 inch, hind limb 5 inch.
9. *Bufo melanostictus*.—*Penang*.

† If no special reference to literature is given, it is understood that the species is described in Dr. Günther's Reptiles of Brit. India, or in my former paper on Malayan Reptiles in Journal A. S. B. vol. xxxix, pt. II.



10. *Bufo asper*.—*Penang*.  
Largest specimen, body 5·5 inch. long.
11. *Epicrium glutinosum*.—*Penang*.

## SAURIA.

12. *Euprepes carinatus*, Schneid., = *rufescens*.—*Penang* and *Sumatra*.  
All have a rufescent bronzy tinge and dorso-lateral pale bands.
- 13.\* *E. olivaceus*.—*Penang* and *Sumatra*.
14. *Riopa albopunctata*.—*Penang*.  
Exactly the same as in Bengal.
15. *Podophis chalcides*.—*Sumatra*.
- 16.\* *Gymnodactylus* (? *Cyrtodactylus*) *pulchellus*.—*Penang*.
17. *Cyrtodactylus affinis*.—*Penang*.  
Comp. J. A. S. B. vol. xxxix, pt. II, 1870, p. 167.
18. *Peripia mutilata*, Wiegman, = *Peronii*, D. and B., teste Peters et Günther.—*Penang* and *Sumatra*.
19. *Hemidactylus frenatus*.—*Sumatra*.
20. *Nycteridium platyurus*, Schneid. = *Schneideri*.—*Penang* and *Sumatra*, very common.  
All have less dark coloration than Himalayan or Khasi hill specimens, but are in other respects not distinguishable, Comp. J. A. S. B. xl, pt. II, p. 103.
21. *Gecko guttatus*.—*Penang*.
22. „ *stentor*.—*Penang*.
23. *Ptychozoon homalocephalum*.—*Penang* and *Sumatra*.
24. *Bronchocela cristatella*, Kuhl.—*Sumatra*, very common.  
All have 36 to 42 small equal scales in a lateral row.
25. *Draco volans*, Linn.—*Penang* and *Sumatra*, very common.
- 26.\* „ *quinquefasciatus*.—*Penang*.
- 27.\* „ *fimbriatus*.—*Penang*.
28. *Hydrosaurus salvator*.—*Penang* and *Sumatra*.  
The light spots and bands are in young and in old males [at least] bright yellow, not white. The species is also very common on all the Nicobar and Andaman islands.
29. *Crocodylus porosus*.†—*Penang*.

† The similarity of form and colour of the young of this species with equally large specimens of *C. Pondichermanus*, Günther, is very striking. My collector recently brought several young specimens (12-14 inches) of the latter species from Arrakan, and when compared with equally large specimens of *porosus*, the former all have the snout, and also the tail, conspicuously shorter; all have only six rows of shields on the back, but there is an additional one on either external edge broken up into single shields. In *porosus* the outer row of shields on either side is complete, or continuous, and on the whole the dorsal shields appear to be smaller. In every other respect the young of both species are identical. I have not seen an adult of *Pondichermanus*, but it ought to be looked for in Arrakan. Both have a small shield on either anterior side of the



## OPHIDIA.

30. *Typhlops nigroalbus*.—Penang.
31.     " *braminus*.—Penang.
32. *Cylindrophis rufus*.—Penang.
- 33.\* *Calamaria Stahlknechti*, n. sp.—Sumatra.
- 34.\* *Oxycalamus longiceps*.—Penang.
- 35.\* *Simotes bicatenatus*.—Sumatra and Penang.
- 36.\*     " *cruentatus*, Theob.—Penang.
- 37.\*     " *catenifer*, n. sp.—Penang and Jahore.
- 38.\* *Cyclophis tricolor*.—Sumatra.
- 39.\* *Ablabes flaviceps*, Günth.—Sumatra.
40. *Compsosoma (Elaphis) melanurum*.—Penang.
41.     " *radiatum*.—Penang.
42. *Ptyas korros*.—Penang.
43.     " *hexagonotus*, (Cant.).—Penang.
44. *Tropidonotus quincunctiatus*.—Penang.
45.     " *trianguligerus*, Schleg.—Penang.
46.     " *vittatus*.—Penang. (Günther's Colub. Snakes).
- 47.\* *Gonyosoma oxycephalum*.—Penang.
- 48.\* *Dendrophis caudolineatus*, Gray.—Penang and Sumatra.
49.     " *pictus*.—Penang and Sumatra.
50. *Tragops prasinus*.—Penang and Sumatra.
51. *Dipsas cynodon*.—Penang.
52.     " *Drapiezii*.—Sumatra. (Comp. Schlegel's Abbildungen).
53.     " *dendrophila*.—Penang.
54. *Chrysopelea ornata*.—Penang and Sumatra.
55.     " *rubescens*.—Penang and Sumatra.

neck, it being a rudiment, or rather probably the beginning, of the anterior nuchal plates.

Besides *C. Pondicherianus*, my collector brought among others the following species which I do not think had been previously recorded from Afrakan.

*Callula pulchra*.

*Diploelma carnaticum* and *D. Berdmorei*.

*Polypedates maculatus* and *P. quadrilineatus*.

*Hylarana erythraea* and *H. Tytleri*. Both quite distinct species.

*Riopa lineolata*.

*Tachydromus sexlineatus*.

*Hemidactylus (Doryura) Berdmorei*.

*Hinulia maculata*. Also common on all the Andaman and Nicobar islands.

*Lycodon aulicus*, (black variety).





56. *Psammodynastes pulverulentus*.—*Penang*.  
 57. " *pictus*.—*Sumatra*.  
 (Colub. Snakes, p. 251). Exactly agreeing with Günther's description.  
 58. *Lycodon aulicus*.—*Penang*.  
 59.\* *Ophites subcinctus*.—*Sumatra*.  
 60.\* " *albofuscus*.—*Sumatra*.  
 61. *Bungarus fasciatus*.—*Penang*.  
 62. *Adeniophis*\* (*Callophis*) *intestinalis*.—*Penang*.  
 " " *bivirgatus*.—*Penang* and *Sumatra*.  
 63. *Xenopeltis unicolor*.—*Sumatra*.  
 64. *Python reticulatus*.—*Penang*.  
 65. *Hypsirhina enhydria*.—*Penang*.

All specimens have an almost continuous dark line along the middle of the lower side.

66. *Hypsirhina plumbea*. (Very variable).—*Penang*.  
 67.\* " [*Ferania*] *alternans*.—*Sumatra*.  
 68. *Fordonia unicolor*.—*Sumatra*.  
 (The young are brownish olive with numerous dark dots).  
 69. *Cerberus rhynchops*.—*Penang*.  
 70. *Homalopsis bucata*.—*Penang*.  
 71. *Hipistes hydrinus*.—*Penang*.  
 72. *Hydrophis robustus*.—*Sumatra*.  
 73.\* *Trimeresurus Wagleri*.—*Penang* and *Sumatra*.  
 74. " *erythrurus*.—*Penang*.

#### RANA FUSCA.

Comp. Anderson in P. Z. S. for 1871, p. 197.

Rufous brown above, with a pale longitudinal dorsal streak, broad in front, narrow towards the posterior end; limbs above somewhat indistinctly variegated and banded with darker brown, posterior side of femora with closer and darker variegations. Lower side uniform whitish, except a few dark spots on the lower lip, but the front-end of the lower lip has a conspicuous white spot, as stated by Blyth.

The nostrils are much nearer the snout than the eye; the tympanum is smaller than the eye, but quite distinct in a nearly full grown specimen; skin above and at the sides of the belly with few scattered slightly enlarged tubercles; lower side perfectly smooth. The first and second fingers are slightly shorter than the third and fourth respectively; the second is shortest. The metatarsus has a single, inner, marginal, elongated tubercle. The first and fifth toes are fringed externally, but the tarsus has no fold. The toes are entirely webbed and their tips very distinctly swollen.

The length of the body equals the distance from the vent to half the length of the tarsus.

\* See Peters in Monatsb. Berlin Akad., 1871, p. 579.



## RANA LYMNOCHARIS, var. PULLA.

Comp. Stoliczka, Journ. A. S. B. vol. xxxix. pt. II, 1870, p. 144.

Since the publication of my notes on this variety I have received two other specimens from Penang. The form of the body, the teeth, the structure and general coloration exactly agree with typical *lymnocharis*, except that in one of the specimens the four dark bands on the upper side of the femora are well marked and somewhat narrower than in the other, in which the coloration is typical. In both, the lower lip is spotted and the chin variegated with dusky. Neither of the specimens has a dorsal pale streak.

One of them measures, body 1·35 inch., which is only one tenth less than the distance between the vent and the metatarsal tubercle, the total of the hind-limb being 2 inch., while in a specimen of typical (half-webbed) *lymnocharis* of which the body is also only 1·35 inch., the distance between vent and metatarsal tubercle is 1·15 inch, but the total hind-limb is 2·2 inch. Thus in *lymnocharis* var. *pulla* the metatarsal bones are longer and the fourth toe on the contrary much shorter than in typical *lymnocharis*. In the former also, as previously noticed, the toes are nearly fully webbed, the web reaching to very near the tip of the third and fifth toes, but only to the base of the penultimate joint of the fourth toe.

The other specimen has the length of the body 1·3 inches, which is equal to the distance between the vent and the heel, and the total hind-limb is 2·17; thus very nearly equal to that of *lymnocharis*, only differing from it by the fuller webbing, the web reaching fully to the middle of the penultimate joint of the fourth toe. In this specimen also the tips of the toes are all remarkably swollen. All other characters are exactly as in typical *lymnocharis*.

These variations appear to me to indicate that they are progressive or undergoing certain changes according to the requirements of the animal, and that we are, therefore, not entitled to give them a specific value, unless they become permanent. I look upon this longer-limbed, shorter-toed and fuller-webbed hill form of *lymnocharis* as a small (*pulla*) local variety, possessing certain peculiarities, in exactly the same manner as the Andaman and Nicobar variety of the same species. (Comp. l. c. p. 142 et seq., and Proc. A. S. B. for June 1872, p. 102).

## RANA PLICATELLA, n. sp. Pl. XI. Fig. 1.

Body moderately stout with longish hind-limbs and swollen tips to the toes.

Head large, snout obtuse, with the canthi rostrales rounded; nostrils lateral, oval, somewhat directed upwards, nearer to the tip of the snout than to the eye; eye large, prominent, its longer diameter is slightly more than





the distance between it and the nostril, but it is equal to the width of the upper side between the eyes. Tympanum naked, as large as the eye.

Head smooth above, hinder half of the eyelids tuberculated; body above with about eight longitudinal somewhat interrupted folds, with numerous small tubercles between them; limbs also smooth above, with the exception of the posterior halves of the tibiæ, which are tubercular; chin in front with a few scattered, minute tubercles, a few others exist on the side of the belly, and the hinder part of the sacral region is densely studded with small plicated tubercles; the remainder of the under side is smooth.

The length of the body is very nearly equal to the distance between the vent and the middle of the tarsus; the fore limb is equal to the distance from the tympanum to the groin. The first finger is scarcely shorter than the third, the second and fourth are subequal. There is a slight fold on the inner lower edge of the tarsus, and one along the outer edge of the fifth toe. The tarsus has a single, inner, elongated, marginal tubercle. The toes are about three-quarter webbed, the web reaching on the fourth toe to scarcely beyond the base of the third-ultimate joint; on all the other toes it extends to the last joint, but it is deeply emarginate between all of them. The tips of all the toes are much swollen; the length of the fourth measured from the base of the tarsus is slightly less than half the length of the body.

Lower jaw with two fang-like projections directed inward. Tongue elongate, much broader towards the tip than at the base, terminating with two moderately sized projections. Vomerine teeth in two short oblique converging series. Sacral diapophyses not dilated.

Above, greenish brown, with a dark band from the nostril through the eye, continuing behind it; limbs with numerous transverse dark bands; they are somewhat ill-defined on the upper arm, on the lower arm there are three or four very short ones, six on the femur, five somewhat more distant ones on each tibia, three on the tarsus, one on metatarsus and a few more on the outer-side of the toes. The hinder sides of the femora are densely and rather minutely variegated with dark brown; a horse-shoe shaped yellow mark, open below, round the anus; folds on the tarsus and outer toe also yellowish; lips indistinctly variegated with pale and dusky; lower side uniform white, except on the tibiæ, and on the feet, which are speckled with dark.

The only species which in some respects resembles the present form is *Rana porosissima*, Steindachner, from Angola (Novara Amphibiens, p. 18, pl. I, figs. 9-13), but it differs in the coloration of the limbs, in the smaller size of the tympanum, smaller vomerine ridges of teeth, in having the apophyses on the lower jaw scarcely enlarged, the tips of the toes not swollen &c.



## EUPREPES OLIVACEUS.

The young (body 1 to 1.5 and tail 1.5 to 2 inches) are very differently coloured from the old. The snout and headshields are olivaceous, the posterior edges of all the shields being blackish; the whole body and limbs are blackish brown, with numerous rather close, transverse, greenish white or yellow stripes; tail and the entire lower side yellowish white, or quite yellow. In the adolescent and some old ones the pale transverse bands exist as remnants in the shape of transverse series of spots, but most adults become entirely olivaceous, with only the edges of the eyelids bright yellow.

## GYMNODACTYLUS PULCHELLUS.

In the descriptions of this species it is usually stated that there are six dark, white edged bands across the body, but properly speaking the sixth band is situated on the base of the tail. Further, it is stated that a fold of the skin exists along the side of the body. This is in reality not the case, at least not in live specimens, but the shield-like scales of the lower side are separated from the granular upper surface by a row of conspicuously enlarged granular scales; this row becomes strongly prominent in spirit specimens, and gives the appearance of a fold.

As regards the position of the femoral pores the species is intermediate between *Cyrtodactylus* and *Gymnodactylus*, the pores lying first in a longitudinal fold and then extending flatly on the femora. This instance shews that *Cyrtodactylus*, (as likewise the present species), should be looked upon merely as a section of *Gymnodactylus*.

## DRACO QUINQUEFASCIATUS.

A single male specimen measures: head and body 3.5 inch, tail imperfect, apparently about 5 inches. The hind limb is contained 1.33 times in the distance between it and the fore limb, the latter being somewhat shorter than the former. There are no enlarged tubercles on the head, but only a number of interspersed, slightly larger white scales at the sides of the neck, and a broad band of closer set ones across the occiput. The scales on the anterior part of the back are obsoletely keeled, on the posterior part they are perfectly smooth. On the wings scales are present along all the ribs, and in numerous longitudinal series on the basal half of the alar skin, while further on their number greatly diminishes, except again at the outer margin.

The specimen has only a very slight indication of a crest on the neck; the gular sack is very long and lanceolate, a dark band running at its posterior base across the lower neck. Chin dark spotted, like the body; tail also spotted at its base, but further on with brown bands. In all other respects the specimen agrees with Gray's characteristic description.



## DRACO FIMBRIATUS.

Dumeril and Bibron, vol. iv, p. 448.—Gray, *Lizards*, p. 234.

A specimen from Penang exactly agrees with the one figured by Gray and Hardwicke in *Illust. of Indian Zoology* as *D. abbreviatus* from Singapore. The scales of the back are very small and almost quite smooth, with a series of larger ones on either side at the base of each wing. Günther (*Rept. Brit. India*, p. 123) says that no orbital or rather post-orbital, spine exists. This is a mistake, at least as far as male specimens are concerned. In these there are two very distinct post-orbital spines; they are well shewn in Gray and Hardwicke's figure. Dumeril and Bibron's minute description of the headshields from Javanese specimens also appears exactly to correspond with the structure of Singapore and Penang specimens.

General colour bronze brown; head, not including the nape, a zigzag undulating slightly variegated band across the neck, another across the shoulders, a third between the hind limbs, and a fourth, though less distinct one, across the middle of the body, pale bluish, a bluish black spot between the eyes; on the body are four irregular marks, each composed of a few blackish lines, and each enclosing along the middle of the back a somewhat elongated diamond-shaped figure.

Limbs with cross dark stripes, and bluish edges to all the front and hind sides. Wings above blackish with radiating bluish lines, below pale with a few scattered black spots. Tail banded with bronze and pale bluish. Chin variegated with dark; gular pouch tinged with blue and red, dusky at the base. Body below uniform yellowish white, with scattered bluish dusky spots, mostly conspicuous along the sides.

## CALAMARIA STAHLKNECHTI, n. sp. Pl. XI. Fig. 2.

Body long, cylindrical, snout somewhat narrowly obtuse; total length 13.5 inches, of which the tail is 1.2 inch; rostral reaching to the upper surface of the head; frontals anteriorly narrower than posteriorly, laterally bent down, and in contact with first and second labials, the nasal being very small; occipital six-sided, with the anterior angle shorter and more obtuse than the posterior one, it is smaller than one occipital; each of the latter has an obtuse angle in front and behind, and both form an inwardly directed angle along the suture on either end; one præ- and one post-ocular; five upper labials, the third and fourth touch the orbit, the fifth is largest, in contact with the post-ocular and occipital; it is followed by a moderately sized shield which has quite the appearance of a sixth labial, and indeed the gape partially extends below this quasi-sixth labial; above this last extends a long temporal. Mental shield small; five lower labials; the first pair is the smallest, separated from each other, the fifth the largest. The first pair of chin-shields is largest, each being in contact with three labials and having a very



obtuse angle behind ; the shields of the second pair are only about half the size of the first, entirely separated from each other by two scale-like shields following each other, and by two other somewhat larger shields from the first very large ventral. Scales smooth, in thirteen rows ; ventrals 163, anal entire, subcaudals 22, the last single occupying the shortly pointed end of the tail.

Uniform iridescent brownish black above, the two outer series of scales on either side mostly white ; upper labials spotted with yellow, the fifth labial being almost entirely yellow. Lower side, beginning a short distance from the throat, with two or sometimes three ventral shields alternately yellowish white and black, the black colour encroaching laterally upwards upon the yellowish white lateral bands, and being longitudinally connected along the edges of the ventrals and subcaudals ; the latter have besides an interrupted blackish line along the middle, and the pale colour is tinged with vermilion. Possibly the red colour extended over the whole of the light coloration during the life of the snake.

The only specimen examined was sent to me with several other species by my friend Mr. Stahlknecht of Singapore ; he collected the same near Dilli on Sumatra.

In general aspect the species resembles *O. Linnæi*, but differs essentially in several points of its structure. It also does not agree with any of the species more recently described by Bleeker and Edeling, or figured by Ján.

#### OXYCALAMUS LONGICEPS.

A single specimen of this rare snake was in the Penang collection ; it measures seven inches of which the tail is one.

The following may be added to Cantor's and Günther's descriptions :

The rostral shield is of moderate size, reaching with its angle to the upper surface of the head ; anterior frontals small, each about one-third the size of a posterior ; the suture separating the two anterior frontals is only two-fifths of the length of the suture between the posterior frontals ; vertical six sided, the sides touching the supraciliaries being parallel to each other ; one supraciliary not quite as wide as half the width of the vertical ; occipitals nearly double the length of the vertical, reaching down on either side to the postocular ; nasal in a *single* shield.

Vent. 137, anal entire, subcaudals 29.

Uniform iridescent black above and below, many of the ventrals and subcaudals with paler posterior edges ; a pale yellowish spot on the fifth upper labial and a second one on each side of the throat.

#### SIMOTES BICATENATUS.

In several specimens, the dark dorsal band is divided by a pale reddish



line. A young specimen has only one præocular, and only the upper smaller temporal is in contact with the postoculars.

#### SIMOTES CRUENTATUS.

Comp. Proceed A. S. B. for August, 1872, p. 145.

This species agrees in general aspect and coloration with *S. bicatenatus*, but it has only seventeen rows of scales. One specimen in the collection has a small portion of a labial detached, forming a second (lower) præocular; it has very few dark blotches on the anterior ventrals; only two black spots on the tail, one at the root, the other near the tip.

#### SIMOTES CATENIFER, n. sp. Pl. XI. Fig. 3.

The body is short, stout, moderately compressed, the head large, conspicuously truncate in front.

Rostral shield well reaching to the upper surface of the head; anterior frontals considerably smaller than the posterior ones, both bent down at the sides; superciliaries narrower anteriorly than posteriorly; vertical large, six-sided, with a very obtuse angle in front, somewhat converging sides, and with nearly a right angle behind; one occipital is about the same size as the vertical, each reaches down to the superior postocular and is rather broadly truncate behind. Nostril between an anterior large and a posterior somewhat smaller shield; loreal squarish; two præ-oculars, the upper is long, while the lower has the appearance of being only a small detached portion of the fourth labial; two postoculars; temporals 1 + 2 + pl., the last is somewhat irregular and scale-like, the first obliquely in contact with both postoculars. Eight, rarely nine, upper labials, the fourth and fifth under the orbit, sometimes a small portion of the fourth is detached, touching the orbit as a separate shield. Mental shield small; nine lower labials, those of the first pair form a suture; anterior pair of chin-shields largest, each in contact with four labials; second pair much smaller, and separated by other two somewhat smaller pairs following each other from the first ventral. Scales smooth, in nineteen rows; ventrals 178 to 205, distinctly angular at the sides; anal entire, moderately enlarged; subcaudals bifid, in 57 pairs.

The general coloration of the upper side is sandy brownish; head with the usual dark brown markings; the first band crosses the eyes and reaches forward to the rostral; the second ascends across the angles of the mouth to the outer median edge of the occipitals; the third is thick, arrow-shaped, anteriorly prolonged to between the eyes. Body with twelve or thirteen dark cross bands, each composed of four confluent spots, the two dorsal ones being larger and darker; tail with four or five cross bands. Between each two of these bands the scales, following alternately each other, are partially blackish, forming three undulating cross lines in each interspace. The sides



along the ventrals are checkered with blackish brown; lower labials with their hinder edges blackish. Lower side dusky yellowish, tinged with red which passes into vermilion on the posterior half; every second or third ventral has a quadrangular black spot at each of the outer edges, the interposed edges being white, and the spots are somewhat more distant on the ventrals than on the caudals.

The total length (in two specimens) is 9.5 inch., the tail being 1.75. I have received one specimen from Penang and Mr. Wood-Mason lately obtained a second one from Jahore, North of Singapore.

This is the fourth species of a small group of *Simotes*, all of which are closely allied to each other and all belong to the Malay or Chinese fauna: they agree in their small size, short and stout body, in the form of the head-shields and in coloration. *S. Cochinchinensis*, Günther, has twenty-one rows of scales round the body. *S. brevicauda*, Steindachner, (Novara Rept. p. 61, pl. iii, figs. 13—14) has, like *catenifer*, nineteen rows of scales, but the occipitals and oculars are in the former somewhat differently shaped, the markings on the head are also somewhat different, and there are no lateral spots on the ventrals; in every other respect both species almost perfectly agree, as far as I can judge from the figure and description, and if I had not obtained two perfectly like specimens of *catenifer* from different localities, I would have hardly ventured to separate them as distinct. The fourth species is Ján's *S. ancoralis*, which has the black spots on the edges of the ventrals, but only seventeen rows of scales round the body and only one præ-ocular.

#### CYCLOPHIS TRICOLOR.

Schlegel, Phys. Serp. II, p. 187, pl. vii, figs. 16—18; *idem*, Dum. and Bibr.; Günther; Ján, Oph. Livr. 31, pl. vi, fig. 2.

One specimen measures 18.5 inches, of which the tail is 7 inch. Scales smooth, in fifteen rows, vent. 144, anal bifid, subcaudals 129. Greyish, or rather olivaceous, brown above, yellowish white below, a black streak from the nasal through the eye to the side of the neck, rapidly disappearing on the anterior part of the body. Each six-sided scale, above, has the anterior lateral margins pale, producing longitudinal zigzag pale lines; upper labials yellow; along the edges of the ventrals and sub-caudals runs an indistinct dusky line, and another interrupted one along the middle of the ventrals, these lines begin to appear a short distance from the neck, which is below and at the sides uniform yellowish.

The fine zigzag pale lines of the upper side are indicated in Ján's figure. Both in structure and coloration the Sumatra specimen agrees with Schlegel's figure and description, except that the head is a little more slender. This specimen had a large spider in the stomach. Schlegel's snake was



from Java and the species has, I think, not yet been recorded from anywhere else.

*ABLABES FLAVICEPS*, (*var.*), Günther.

Ann. and Mag. Nat. Hist. vol. XVIII, 1866, p. 26, pl. vi, fig. B.

One specimen agrees well with Günther's description and figure of this snake, but it has nine upper labials, the second being replaced by two, so that the 4th, 5th and 6th labials enter the orbit. The hinder chin-shields are almost in immediate contact with the first well marked ventral. Total length 16·7 inch., of which the tail is 5·5 inch., being somewhat obtuse at the end; scales in 17 rows, one præ- and one or two post-oculars, 150 ventrals, anal bifid, 70 subcaudals.

Head yellow, somewhat tinged with brown in front, a straight black streak through the eye and a white one along the upper labials. The general colour of the upper side is brown, powdered with grey; a light blue band begins on each side of the neck, continuing on each side of the back, the colour gradually turning to grey, but both bands remain tolerably distinct to the tip of the tail. On the front part of the body each is marked with squarish black spots along the inner edge, further on the spots become smaller, alternate in position on the two sides, but are somewhat removed from the internal margins towards the middle line. Below, yellowish, all the ventrals, (except those on the neck), with narrow blackish hind edges about the middle of the body, almost meeting in the centre, but further on the black becomes more confined to the outer margins, and on the subcaudals it forms a serrated black band on either side, as in *Ablabes melanocephalus*, to which the present species bears a very strong resemblance. Dr. Günther mentions in his specimen only the presence of a black spot on either side of the ventrals.

*GONYOSOMA OXYCEPHALUM*.

A very large specimen, measuring about five feet, has the scales round the body in 27 series; it is sea-green, the tail strongly tinged with rubescent brown, the sutures of the scales being blackish; the dark streak on the side of the head is very indistinct; upper labials whitish green.

*DENDROPHIS CAUDOLINEATUS*.

Dr. Günther when noticing my paper on Penang Reptiles in the Zool. Record for 1870, says that I described his *D. caudolineolatus* (from Ceylon), as *D. caudolineatus* of Gray. I should have hardly expected such a brief dismissal of the consideration of all other points connected with the identification of this species. Dr. Günther appears to have noticed merely my statement regarding the thirteen rows of scales round the body, and to this one charac-





ter he seems to have sacrificed everything else. Now the Penang species, of which I lately also received four beautifully preserved specimens from Sumatra, has only *thirteen rows of scales*. Cantor's description of the snake is admirable, and he gives also thirteen rows of scales. Dumeril and Bibron, when describing their *D. octolineatus*, also speak of only thirteen rows, and Ján (Ophid. Livr. 31, pl. II,) gives the same number of scales when figuring the species under Dum. and Bibron's name.

Thus the question to be determined is, whether Gray's type has thirteen or fifteen rows of scales round the body? If fifteen rows are present, we have to see whether we are entitled to regard this number as a normal or abnormal one in that particular specimen, that is, whether other specimens from the same locality have 13 or 15 rows of scales; for as far as other points of structure and coloration go, the Penang and Sumatra species is absolutely identical with Gray's *caudolineatus*. I have no Bornean specimens for comparison, so I can add nothing more towards the solution of the question.

The Ceylonese *D. caudolineolatus*, as far I can judge from the description and figure of it, differs in the structure of the præ-ocular, in the upper labials, and so very essentially in coloration, that I could not have thought of identifying the Penang *caudolineatus* with it.

#### OPHITES SUBCINCTUS.

One specimen measures eighteen inches, of which the tail is 3·25 inch. The general colour of the upper surface is black, slightly duller at the sides, dull olivaceous blackish below; front head above blackish brown; seventeen broad white rings round the body, the first on the neck, and four on the tail; the white of the rings is considerably more distinct on the anterior than on the posterior part of the body. The eight median rows of scales on the back are keeled; eight upper labials, regular on both sides.

#### OPHITES ALBOFUSCUS.

A remarkably slender snake, measuring 18·75 inches, of which the tail is 5·75 inch. It has seventeen rows of scales, all strongly keeled, the keels on the back being finely crenulated. The general structure exactly agrees with Günther's account of the species. The specimen has 241 ventrals, anal bifid, and 178 subcaudals, the last shield is single, very long and cylindrical.

The general colour is dark brown above, olivaceous white below; hind head and collar on neck very slightly olivaceous white tinged with yellow; body with twenty-six transverse white cross bands, some are imperfect, the intermediate brown bands of ground colour being first thrice, afterwards only twice as broad as the white ones. Tail with about twenty-six transverse white bands, several of them succeeding each other being often



confluent along the middle line, and all are about equally broad as the brown bands separating them; towards the tip of the tail the light coloration prevails and almost entirely suppresses the dark one.

Mr. Stahlknecht obtained only a single specimen near Dilli on Sumatra. Dumeril and Bibron also described a specimen from Sumatra; another one is reported by Dr. Günther as having been brought from Malabar, but as it was bought from a dealer, the locality is not considered reliable.

#### HIPSIRHINA [FERANIA] ALTERNANS, Reuss.

*Eurostus alternans*, apud Dum. and Bib., Herp. Gen., VII, p. 957.

*Homalopsis decussata*, Schlegel.—*Hipsirhina alternans* apud Ján, Ophid., Livr. 30 pl. vi, figs. 1 and 2.

One specimen measures: total length 8.25 inches, the tail being one inch. It has two anterior frontals, the first scarcely half as large as the posterior, vertical six-sided, much smaller than one occipital; one loreal, one præ-ocular, two post-oculars; seven upper labials, the fourth under the orbit; the two first lower labials are in contact; two pairs of chin-shields, the first forms a suture, the shields of the second pair are much smaller, diverging and with their upper pointed ends lying between the first chin-shields and the labials. There are twenty-six rows of scales immediately behind the head, twenty-two round the neck, below interrupted by the second ventral, and nineteen round the middle of the body, ventrals 157, anal bifid, subcaudals thirty-four, the first five entire, the last conical.

General colour brown; head, above, anteriorly with a few pale spots; back with narrow pale (yellowish) cross bands: the first passes over the hind-edges of the occipitals and is laterally bipartite, the next four are simple and complete, the following after these mostly interrupted along the centre, and after the middle of the body the bands become reduced to indistinct lateral spots. The sides of the body are marked with a series of pale yellow cross-bars, more than one scale broad, and are separated by equally broad bands of the general brown coloration; the lateral pale bands more or less encroach upon the ventrals, but the general colour of these latter is pale brown. Chin and upper labials spotted with yellow.

This coloration slightly differs in minor details from that given by Ján, but it agrees with it in all essential points.

The larger size of the occipitals as compared with the vertical, the smaller number of upper labials and of the scales round the middle of the body, and the coloration readily distinguish the present species from *F. Sieboldi*.\*

\* Günther, in Ann. and Mag. N. H., 1866, xviii, p. 28 and in Zool. Rec. for 1868 says, that Ján figured *F. Sieboldi* as *Hypsirhina Bocourti* (Iconograph. Livr. 28, pl. v, fig. 2). Ján's *H. Bocourti* has apparently only 23 or 25 rows of scales round the body,



## TRIMERESURUS WAGLERI.

Fresh specimens are black above, with numerous spots on top of head, the superciliary edges, both lips, numerous narrow cross bands and the whole of the lower side bright golden yellow with a greenish reflection during life; the stripe from the nostril to below the eye, continuing above the angle of the mouth, one stripe on each side along the margins of the labials, and all the other light spots on the back, but particularly at the sides, are sea-green, more or less tinged with yellow.

NOTES ON THE INDIAN SPECIES OF THELYPHONUS,  
by DR. F. STOLICZKA.

(Received 23rd February, 1873, read 5th March, 1873.)

[With plate XII.]

Towards the end of last year, a monograph of the genus *Thelyphonus* appeared in the September number of the Annals and Magazine of Natural History. The author of the paper, Mr. A. G. Butler, seems to have sifted well the materials of the national collection in the British Museum, but whether he has succeeded in his determinations of known, described and figured, species, is a question on which I may be permitted to say a few words. I will not unnecessarily transgress the field of my observations, and will chiefly confine my remarks to the Indian representatives of the genus.

I had for some little time devoted attention to these Arachnoids, and it has been my intention to publish a detailed monograph of the Indian *Thelyphoni*, together with an account of their anatomy,\* notes on their habits, propagation, development, etc., all points about which our present knowledge is as yet very imperfect. Unfortunately, I have just at the present neither the time nor the materials which would justify me to treat satisfactorily with this subject, and I must leave it, therefore, for a subsequent communication. One of the chief objects of the accompanying notes is to draw the attention to certain discrepancies, or perhaps insufficiencies, in Mr. Butler's determinations of a few of the Indian *Thelyphoni*.

the coloration is somewhat similar to that of *F. alternans*, the occipitals are much longer than the vertical, and there is only one anterior frontal, this, however, is also said to exist in an old specimen of *Sieboldi* from Siam. Still I am not certain that Günther's suggested identity of the two snakes will be confirmed.

Ján does not acknowledge the distinctness of *Ferania* from *Hipsirhina*, and if *F. Sieboldi* has occasionally only one anterior frontal, the principal reason for keeping the two genera as distinct no doubt loses its validity.

\* As compared with that of the Scorpions.





Lucas' account of the external anatomy of *Thelyphonus* is the only reliable one which we as yet possess. Short as it is, it clearly points out the great relation of the genus to *Phrynus*, and its essential difference from the scorpions.

As regards general distribution, I may say, that on the whole, particularly when compared with scorpions, the *Thelyphoni* are rare. I have only observed two life species, *T. scabrinus* and *T. (conf.) angustus*. Both were found at the foot of the Sikkim hills in damp places under the bark of old trees. They are crepuscular or nocturnal animals. When disturbed during the day, they try rapidly to escape, slightly raising themselves on their feet, holding up the cheliceres ready for defence, and erecting their caudal seta. Thus they progress very fast and soon disappear in any crevice or hole to which they find easiest access. In the evening they progress very quietly, moving their antennular first pair of feet in advance. When disturbed they stretch out these feet in a curve, and close their cheliceres over the mouth as a kind of protection, lying at the same time quite flat and motionless. I saw *T. scabrinus* issuing a peculiar fluid from two internal piloric appendages on each side of the anus, but the fluid did not have any offensive odour.

Mr. Peal of Sibsagur (Assam), who is an able observer and is always ready to give assistance on any subject connected with natural history, writes to me also that the *Thelyphoni* are generally found underneath the bark of decayed wood in groups, rarely singly. When first uncovered they (generally) lie *perdu* and try to pass as some smudge or fungus; lying close and flat, the legs gathered well together and the cheliceres folded in and closed in front of the mouth. On being disturbed they generally start up, throw out and up their cheliceres, gaping wide, erect the tail and invert it so as to feel if possible any object above them; sometimes they throw it quite over between the cheliceres. The first pair of feet, he says, seems to act more as feelers than as organs of progression. These animals seem to move either very slowly or very fast. In raising any fragment offered, they hold it aloft and stand well upon their legs, at least for a time.

Mr. Butler proposed to group the *Thelyphoni* in three sections, according to the number of denticles on the upper antero-interior edge of the second joint of the cheliceres. This is apparently a character of great importance, but like all others it is not without variation. I found that the relative proportions of the joints, particularly of the second, third and fourth, are almost more constant than the denticles alluded to. The form of the large spine on the fourth joint, and in fact the total length and ornamentation of the surface of the cheliceres, and the proportionate length of the feet are at least equally important in distinguishing the species.



The next useful character lies in the form of the anterior part of the thorax, whether it is depressed or rounded, and whether the anterior and lateral eyes are connected by a ridge or not. Next in importance is the form of the first abdominal shield. The length of the tarsi on the first pair of feet is also tolerably constant, and so is the form of the mandibles, but these, as a rule, are difficult to examine.

All other characters relating to the form of the body have a comparatively limited value; the single parts are very uniformly constructed in the different species, and are at the same time very much liable to variation. Thus the width of the abdomen is very variable, (most likely according to the different sexes), and so is the length of the abdominal seta, as regards number and size of the separate joints, etc.

Turning now to the sections, distinguished by Mr. Butler, there are some discrepancies to be noticed in the species referred to them by the author. In the first section, with five denticles on the second joint of the cheliceres, we find among others:

*T. Brasilianus*. I count in Koch's original figure of the species at least seven, almost equal, denticles on the antero-interior edge. Their number, it is true, is not mentioned in the description, but if Koch's figure has been found to be incorrect, the correction should have been noticed. I am not aware that anybody has pointed out an inaccuracy in Koch's figure.

Guerin's *T. caudatus* (in his edition of the *Régne animale*) is identified with *T. Antillanus* of Koch. This is, I think, hardly admissible. Guerin's figure represents a species with comparatively shorter limbs and with the third joint of the cheliceres smooth on the upper surface and much longer, than a comparison of Koch's figure of *T. Antillanus* can bear out. The only reason for the identification of the two figures is, I think, Guerin's note that *T. caudatus* is from the Antilles, but whether that particular specimen was from the Antilles is an other question.

The identification of *T. Assamensis* with *T. rufimanus* of Lucas is entirely inadmissible, as I shall point out in detail further on (see p. 134).

*T. proscorpio* of Latreille is an altogether doubtful species, and even should Koch's definition of the presumed same species be adopted, there is no sufficient reason for considering it as identical with *T. caudatus* of Lucas. I shall refer to this question again in the description of *T. scabrinus* (see p. 133).

*T. Langanus*. Koch's original figure gives six denticles on the second joint of the cheliceres, but does not refer to that number in the text. Is the figure incorrect in that respect?

Koch's *T. rufipes* is clearly not the same species as the one originally described by Lucas under the same name. The cheliceres and the limbs are in proportion to the body much longer in the former than in the latter; and, besides that, Koch's species has a slight central keel on the upper side of the





abdominal segments, and on the lower side the first segment is centrally grooved; neither of these characters are mentioned by Lucas, though when describing the respective parts he could hardly have overlooked these prominent characters. I consider Koch's *rufipes* as the same which he describes under the name of *proscorpio*; for the differences which he notices as distinguishing the two are decidedly of no specific value.

In the second group with two denticles on the second joint of the cheliceres, Butler describes *T. formosus*. My specimen of evidently the same species has six denticles of which, however, only two are well marked.

In the third division, including species with six well developed denticles, one is referred to under the old name of *T. caudatus*. I shall attempt to trace the history of this name when speaking of *T. indicus*, (n. sp.), which is possibly the same species as the one referred to by Butler from Madras and Bengal under the name of *T. caudatus*.

In addition to the three sections, I have one species, *T. Beddomei*, from the Anamallies, with seven denticles on the upper edge of the second joint. Among the very large number of specimens of *T. scabrinus*, (n. sp.), I found instances in which the second left joint has occasionally six denticles, while the right one had constantly only five. This clearly shews that the sections solely based upon the character, selected by Mr. Butler, can have only a very limited use.

Thus far I have commented upon Mr. Butler's determinations, but it must be understood that in the above instances my observations are mainly based upon descriptions and figures; for I have no other but Indian specimens for comparison. If those descriptions and figures were found to be incorrect, or not reliable, the mistakes had first to be pointed out and corrected, before a determination, based upon them, was admitted or rejected.

Finally, before entering upon the specific details, I must briefly allude to the geographical distribution of the genus. This distribution extends from South America and the West Indies northwards to Mexico, in a westerly direction through the ocean of little islands to the Philippines, touching North Australia, and stretching North as far as Corea, China and through the Malay Peninsula to Burma and India, where we meet with most of the species in the provinces of Assam and Sikkim, more rarely in Bengal and in South India, including Ceylon, all countries which have a marked admixture of Malayan types. No species is known to occur westward of the country alluded to, not even in Eastern Africa, as far as we know at present. This distribution resembles in so many respects that of the PASSALIDÆ, that I shall again return to its discussion at an early opportunity.





The species which I have to notice from India, are :

1. *T. scabrinus*, n. sp.—Cachar, Khasi hills, Assam, Sikkim.
2. *T. Assamensis*, Stol.—Assam, Sikkim.
3. *T. (conf.) angustus*, Lucas.—Sikkim, Martaban (Moulmein), and Penang.
4. *T. formosus*, Butler.—Martaban (near Moulmein).
5. *T. indicus*, n. sp.—South India, W. Bengal, and Jahore, North of Singapore.
6. *T. Beddomei*, n. sp.—South India (Anamallies).

I will make my descriptions as complete\* as possible, and will not only give figures of single parts of the body, but also of the perfect specimens, in order to facilitate the determination by identification and not by guess. Figures of single parts are undoubtedly very useful, but they are not sufficient; they do not convey an exact idea of the relative proportions of all the parts of the body, and without paying due regard to these, a really reliable determination of *Thelyphoni* is in my opinion impossible.

1. *THELYPHONUS SCABRINUS*, n. sp. Pl. XII. Fig. 1.

*The whole upper surface granular; length† of the five terminal joints of the cheliceres equalling the length of the first eight abdominal segments; the length of last pair of feet equals exactly, or very nearly, the total length of the cephalothorax and abdomen; second joint of the cheliceres with five spines, third with a spine on the upper and lower inner edge, and equal in length to the fourth joint; a sharp upper ridge connecting the central and lateral eyes; first lower segment of abdomen of moderate size, depressed, with a broadly convex posterior edge.*

*Hab.*—Sikkim, Assam, Garo-, Khasi- and Cachar- hills.

The cephalothorax is slightly convex, with the anterior ocular portion somewhat higher, but on the whole depressed and flattened, roundly obtuse in front. The two anterior blackish eyes are separated by a moderately levated smooth tubercle; from its anterior edge proceeds a sharp ridge curving outward, and running along the upper edge to the three lateral eyes, which are pale yellow. The ocular portion is more densely and somewhat more coarsely granular than the thoracic one; the former has a longitudinal central groove,‡ and parallel to it an indistinct elevation on either side, placed nearer

\* I know that few would take the trouble of reading them on account of their length, but everybody, who has attempted to determine Arachnoids, will know that a description, unless fully detailed, is worthless for an accurate determination.

† This length is of course measured as far as the joints can be opened without disconnecting the articulation; it is not the aggregate length of the separate joints.

‡ I shall speak of this as the *cephalic groove*, and of the one on the posterior half of the cephalothorax as the *thoracic groove* and the *lateral thoracic depressions*.





to the margins ; the latter has also a longitudinal groove which is most depressed in the centre ; anteriorly from the central depression proceed two lateral grooves to the postocular depressions, and from the centre itself two on either side towards the margin. The sternum is triangular, obtuse in front.

The abdomen is moderately depressed, very elongately ovate, across the middle about one-twelfth of an inch broader than the thorax ; granular above, with the posterior segmental edges crenulated ; the muscular points\* are round and well marked on the second to eighth segment, the three last segments are mostly smooth, the last joint being roundly compressed towards the upper end, with a small vertical and elliptical gland on either side. Below, the first nine segments are finely scrobiculate punctated at the sides, and smooth along the centre ; the first joint is largest, equalling in length the three last ones, with the central portion of the posterior edge somewhat convexly produced ; the second joint is barely curved at the edge and the third, like the succeeding, quite straight. The muscular impressions are elongate and well marked on the fourth to seventh joints, but a little less distinct and more approximate on the first and second joints. The caudal seta very nearly equals in length the whole of the body, it is always peculiarly attenuated towards the end, and all the joints are more or less hairy. The length of the joints and their number is very variable ; the first is as usually the longest, the succeeding either gradually decrease in length, or some of them situated near the middle are longer than the rest.

The cheliceres may be regarded as of proportionate size to the body. The two first joints have each a strong spine in front, provided with a sharp joint and a small denticle on the inner side. The second joint has the upper side depressed, anteriorly moderately produced, with three small denticles on the inner edge, and two larger ones on the anterior one ; the outermost larger denticle is somewhat more distant from its preceding one, than any of the others from among each other, but all are directed forward and inward ; the inner concave side of this joint is coarsely granular, and the lower anterior corner has two denticles, of which the terminal one is the larger. The third joint on the upper side is equal in length to the second, and laterally along the middle to the fourth ; it always has a small denticle on the inner anterior corner, and a larger one in front of the middle of the lower edge. The anterior process of the fourth joint equals in length the fifth joint, it is depressed, smoothish, with a rapidly contracted sharp point and serrated edges, the posterior serration being slightly coarser

\* These points or depressions are very often called stigmatic points, but they have nothing in common with the stigmata, which lie under the edge of the first lower abdominal segment, and are not externally visible ; the depressions are merely places of the inner attachment of the muscular bundles which connect the upper chitinous integument with the lower one.





and beginning with two somewhat larger denticles at the base of the process; this fourth joint also has a minute denticle on the lower anterior corner. The fifth joint is invariably conspicuously shorter and thinner than the fourth, anteriorly with a strong depressed, sharply pointed process which is somewhat more coarsely serrated posteriorly than anteriorly; the lower anterior corner of this joint has two denticles, the anterior of which is somewhat stronger than the corresponding denticle of the preceding joint. The sixth joint, or movable claw, is somewhat longer than the process of the fifth, slightly inwardly curved, sharply pointed, above and below with a finely serrated edge, internally on the concave side with a smooth ridge, and two equally smooth ones are externally on the convex side.

The first pair of feet are thin; the terminal eight tarsal joints are shorter than the preceding metatarsal one. The coxal and femoral joints of the three other pair of feet are thick, depressed, very densely and finely granular.

*Colours.* Full grown specimens are above brown, slightly darker on the cephalic portion of the thorax and on the cheliceres, except near their ends; all the feet from their tibial joints to the end are red, and each joint of the three posterior pairs has near its terminal upper edge a black dot; the last joint of the maxillæ, the ocular tubercle and the claws are black. On the lower side the cheliceres, the prosternum, the abdomen are more or less dark brown, the coxæ of the feet and the sternum are yellowish brown and the feet reddish brown.

The following are the dimensions of a specimen of very nearly the same size as the one figured by Koch as *T. proscorpio*.

Total length of cephalothorax and abdomen, .....	37 mm.
Length of cephalothorax, .....	13.6 "
" " abdomen, including the three terminal joints, .....	23. "
" " cheliceres, measured above, without basal joint, .....	17.5 "
" " first pair of feet, excluding the basal or coxal joint, .....	44. "
" " second ditto, .....	25. "
" " third ditto, .....	26.5 "
" " fourth ditto, .....	36. "
" " abdominal seta, ditto, .....	36. "

In young specimens (with a total length of about 20 mm.) the abdomen is often slightly longer in proportion to the length of the cheliceres, but there is not the least difference in structure. The body and cheliceres are olivaceous brown, the process of the fourth joint, the whole of the fifth and sixth joints of the cheliceres red; coxal and femoral joints of all feet olivaceous, the remaining joints and the seta yellowish red. On the lower side, the basal joint of chelicères is pale brown with the spinal processes red, the three following olivaceous brown, the two terminal red; prosternum





olive brown, coxæ and sternum yellowish brown, abdomen pale brown, feet of the same colour as on the upper side.

The species grows to a large size: the largest specimen from Sikkim has the total length of cephalothorax and abdomen 50 mm.

In Sikkim the species is found from 1000 to about 4000 feet in damp places under wood, more rarely under stones. It is the most common of all the Indian *Thelyphoni*. I have examined about forty specimens of all sizes from 20 to 50 mm., and all exactly agree in structure.

It seems very improbable (judging from the localities recorded by Mr. Butler) that there should be no specimens of this species in the British Museum, but I am not certain whether Mr. Butler refers to it under *T. rufimanus* or *proscorpio*. He must have thought it not worth while reading my description and comparing my figure of *T. Assamensis*, or else he could not have referred it to the present species.

The original name *T. proscorpio* of Latreille (Gen. Crust. et Insect., 1806, p. 130) was, strictly speaking, proposed for Linné's *Phalangium caudatum*. In spite of the numerous references to figures in various old books, it is entirely impossible to trace the species which Latreille had in view. The name would have had to be entirely ignored, but for its timely rescue by Koch who figures a Javanese species under Latreille's name, giving the same synonyms, (Arachniden, Vol X, p. 26, pl. 333, fig 771). Judging from mere figures, we are, I think, justified to regard the species, delineated by Koch, as different from Lucas' *Th. caudatus* (to which I shall refer further on). Koch's *proscorpio* would appear to have the joints of the cheliceres shorter and thicker, the fifth much stronger than the fourth, (while the reverse is observed in Lucas' figure), the centre of the anterior upper abdominal joints keeled, the first, lower abdominal joint very large and with a longitudinal groove. I hardly think that Lucas could have overlooked the last character, when describing the first lower abdominal joint; and besides that in his species he particularly refers to a separate small spine preceding the great spinal process on the fourth joint of the cheliceres; it is indicated in his figure, but not a trace of it is to be seen in Koch's figure. For these reasons, it seems to me clear that we have to consider Latreille's re-established *Th. proscorpio* as distinct from Linné's re-established *T. caudatus*.

Butler also doubtfully refers Lucas' *T. angustus* to his compound mixture of *Th. proscorpio*, but with still less reason, as I shall presently shew.

## 2. THELYPHONUS ASSAMENSIS, Stol. Pl. XII. Fig. 2. .

*T. Assamensis*, Journ. A. S. B. Vol. xxxviii, Pt II, 1869, p. 205, pl. xix, fig. 1.

The whole upper surface granular; the length of the five terminal joints of the cheliceres fully equals the first nine abdominal segments; the last foot is



longer than the cephalothorax and abdomen together; second joint of cheliceres with five subequal spines, four being on the inner, one somewhat more distant on the upper anterior edge; third joint with a single strong spine on the lower median edge, it is longer and slenderer than the fourth joint, whose anterior process is long, subcylindrical, smooth posteriorly, denticulate on the antero-interior edge; a sharp denticulate ridge connects the central with each group of lateral eyes; first lower abdominal segment depressed, particularly in the middle, with the posterior edge convexly produced.

*Hab.*—Assam and Sikkim. The species is much rarer than the previous.

It will be seen from this abbreviated characteristic that the species is very closely allied to the previous, but after having examined several specimens of each, exactly agreeing with each other, I think they must be looked upon as two distinct species. I have already given a detailed description of the present one.

In size and coloration it almost exactly agrees with *T. scabrinus*, but is slightly more depressed, the cheliceres are somewhat more slender and longer. The spines on the second joint are subequal, four on the inner edge, and one distant one on the upper edge; the form of the third joint and the process on the fourth differ essentially, as may be readily seen by a comparison of the enlarged figures of the respective cheliceres. The feet are also proportionately longer than in *T. scabrinus*; the eight tarsal joints on the first pair equal in length their preceding metatarsus. Internally along each group of lateral eyes are two imperfect ridges of granules somewhat parallel to the central cephalic groove.

As regards general form and proportional size of the joints of the cheliceres *T. Assamensis* is also closely allied to *T. caudatus*, as emended by Lucas, but the denticles on the second joint are very different.

Butler (loc. cit. p. 202) considers *T. Assamensis* as the adult of *T. rufimanus* of Lucas. If such identifications were admitted, we might better give up the idea of distinguishing at all species of *Thelyphoni*; a superficial comparison of the respective figures will shew that the cheliceres and limbs of *T. Assamensis* are proportionally very much longer, than could possibly be attributed to a change in age. Lucas particularly refers to the shortness of the cheliceres\* in his description of *T. rufimanus*, their third joint is said to have no spines whatever; the first lower abdominal segment is stated to be very large. Besides that it appears to me, judging from the figure, that there is in Lucas' species no sharp ridge between the central eyes.

### 3. *THELYPHONUS (conf.) ANGUSTUS*, Lucas. Pl. XII. Fig. 3.

? *T. angustus*, Lucas, Guérin's Mag. de Zool. for 1835, pl. 10, fig. 3.

*Cephalothorax and abdomen long and slender, finely granular above; cheliceres in young almost entirely smooth, in old specimens with the exception of*

\* They are much shorter than the abdomen.





*the second joint mostly smooth, the length of the five terminal joints is about equal to that of the first six abdominal segments, which is slightly more than the length of the cephalothorax; the length of one of the last feet, or that of the caudal seta, is considerably less than that of the cephalothorax and abdomen together; cephalic portion of thorax at the sides between the central and lateral eyes rounded; second joint of cheliceres with five denticles, of which the two uppermost are subequal and larger than the three others; third joint not longer than the fourth, with a denticle on both the upper and lower inner edges; first lower abdominal segment depressed, with the posterior central edge somewhat narrowly produced.*

*Hab.*—Penang, Moulmein, and Pankabari (Sikkim).

I have six specimens for examination, two from each locality; they all agree in the above characters, and appear to me to be referable to Lucas's species.

The slenderness of the body and the shortness of the cheliceres are very striking distinctions as compared with the two preceding species. The cephalothorax is only about half the total length of the abdomen, with the anterior end somewhat narrowly rounded, convex above, the cephalic portion being more distinctly, though still very finely, granular than the thoracic one; the median ocular tubercle is low, rounded, smooth; the central eyes small, black; the sides between them and the lateral amber-coloured eyes rounded, with a slight longitudinal elevation above the latter. The cephalic groove is distinct, beginning a short distance behind the ocular tubercle. The central thoracic impression is rather large, with a very fine groove passing through it; lateral impressions rather indistinct. Prosternum on the face obtusely keeled with a short anterior broad point; sternum ovately subtriangular, smooth, anteriorly subtruncate.

The first nine abdominal shields are on the upper side very finely granulated, with slightly raised lateral and posterior edges. The muscular rounded pits are well marked from the second to the eighth segment. The lateral kin is densely and very finely punctated and scrobiculate. The first segment has the middle of the posterior edge narrowly produced, and its length laterally is equal to that of the two succeeding ones, all three are broadly laterally punctated, smooth in the middle, while the other segments are mostly smooth, with only a few fine scattered dots.

The caudal seta is always shorter than the total body; it is distinctly hairy in young specimens, but the hairs easily wear off in adults.

The cheliceres are almost quite smooth in young specimens, while in adults the second joint is on the upper side densely punctated, the other joints are very sparingly covered with hair, these becoming, however, more numerous towards the tips. The first joint is flattened, with two anterior diverging processes, each terminated by a short spine, which has the appearance as if it had



been set into the abbreviated end of the process. The remaining five joints are in form, relative size and denticulations, exactly like those of *Th. scabrinus* on a small scale, with the single exception that, as already observed, they are mostly smooth. The eight tarsi of the first attenuated pair of feet are considerably shorter than the preceding metatarsus. The remaining feet have the femoral joints depressed and finely granular above.

Colour of adult, above, blackish brown, somewhat less pure on the abdomen and with the three terminal joints of the cheliceres reddish brown, coxal and femoral joints of all feet olivaceous brown, remaining joints bright red; lower side entirely reddish brown, only the second and third joints of the cheliceres, the points or denticles of all the other joints, the prosternum, the femora, the external margins of the abdominal segments, including nearly the whole of the four terminal ones, are blackish; the shades of brown, however, slightly differ: the last joint of the cheliceres being rather bright red, the first pair of feet reddish brown, the coxæ and sternum yellowish brown and the abdomen chesnut brown; the seta is reddish brown.

Younger specimens have all the upper dark brown as well as the lower reddish coloration paler, but the ends of the cheliceres are bright red and the feet and caudal seta yellowish red. In the four specimens from Sikkim and Penang the femoral joints of the first pair of feet are dark, in the two specimens from Moulmein the whole of these feet are reddish brown.

The largest specimen from Sikkim measures:—

Total length (excluding the seta), .....	31	m.m.
Length of five terminal joints of cheliceres, .....	11	" "
" " cephalothorax, .....	10	" "
" " abdomen, .....	20	" "
" " first pair of feet (excluding the coxa), .....	26	" "
" " second, .....	16.5	" "
" " third, .....	17.5	" "
" " fourth, .....	25.5	" "
" " caudal seta, .....	26.5	" "

A comparison of my figures and description of the present species with those of Lucas (loc. cit.) will show, that the form of the body, the proportions of the different joints and the coloration agree as closely as could be expected, so much so that I can scarcely doubt the identity of the two. There is only one point in Lucas' description which, although in itself apparently of no very great importance, is contradictory to what can be observed in my specimens. Lucas says that the third joint of the cheliceres is smooth on the upper inner edge, and provided with a spine only on the lower edge, while in all my specimens there is a distinct though very small spine on the upper edge and a somewhat larger one on the lower. As Lucas' type is in the Paris Museum, it will be comparatively easy to settle this point by a re-examination of the specimen.





## 4. THELYPHONUS FORMOSUS, Butler. Pl. XII. Fig. 4.

Ann. and Mag. nat. hist. 1872, vol. x, p. 203, pl. xiii, fig. 4.

*Upper side of body finely granular, of cheliceres nearly smooth, length of the five terminal joints of cheliceres very nearly equalling that of the first nine abdominal segments; second joint of cheliceres on the upper anterior edge with six very small denticles, of which only the two middle ones are pointed, fourth and fifth joints more swollen than the two preceding ones; edge between the central and lateral eyes swollen, rounded, not carinated; length of one of the last feet almost exactly equals the cephalothorax and the abdomen; first lower abdominal segment very large, with the median posterior edge produced, but still truncated, and depressed.*

*Hab.*—Moulmein, (in the Martaban province).

The cephalothorax is comparatively small, its length being only slightly more than half that of the abdomen; it is convex, anteriorly somewhat narrowly rounded, with the cephalic portion behind the ocular tubercle transversely rugose, further on rugosely granular, the granulation being considerably stronger than on the thoracic portion. Ocular tubercle and central eyes small, black. Cephalic groove with slightly raised margins. Edges beginning a short distance behind the central eyes and extending to the laterals broadly rounded and swollen. Median and lateral thoracic grooves and impressions narrow, but distinct and shining smooth. Prosternum narrow, subcarinate; the sternum rather elongately trigonal, anteriorly obtusely rounded, with the sides posteriorly sloping.

The first nine upper abdominal segments very finely granular, with crenulated posterior margins; the muscular rounded pits are distinct on the first eight segments, the three last narrow segments are smooth. Sides punctured, and with small scattered elongated tubercles, of which a median row slightly exceeds the others in size. On the lower side the two first segments are strongly rugose at the sides, the others only punctated, the median portions being smooth, except on the narrow second and third segments on which the punctuation extend almost to the centre. The first segment is largest, with the posterior part centrally produced, but with the edge truncate. The first pair of feet is entirely smooth, the second and third have the femoral joints, and the last all the joints, scrobiculately punctated, the punctuation extending even to the hinder sides of the coxæ.

The cheliceres are sparsely hairy, except on the inner sides and near the tip. Each first joint has anteriorly a strong sharply pointed process. The second joint has on the upper margin six denticles, four being on the inner edge,—the two lower obtuse, the two upper pointed and longer,—the fifth and sixth are on the anterior edge, both very small and indistinct, the last is distant from the rest; the anterior half of the joint is transversely rugose; the lower anterior edge has two subequal very small denticles. The third



joint is slender, slightly longer than the second, with numerous sharp granules on the upper rounded inner edge, and one strong spine in the middle of the lower edge. The fourth joint is not longer but considerably thicker than the third, with a long, inner, rather equally slender, smooth, anterior process, with its termination shortly bifid and internally provided with a compressed tubercle. The fifth joint is equal in length to the preceding, but again more inflated, with a short and broad anterior process, sharply serrated on both edges. The sixth joint is moderately curved, externally grooved and with the upper and lower edges finely serrated, and internally pilose.

The length of the eight tarsi of the first pair of feet is less than that of the metatarsus. The femora of the other feet are moderately thickened and depressed.

*Colours.* Above,—cheliceres and cephalic thorax brilliantly shining blackish brown, remainder of cephalothorax and abdomen dull blackish; maxillæ with the exception of their tips and all feet bright reddish chesnut; caudal seta somewhat deeper red; sides of abdomen fulvous brown. Below,—cheliceres on the first joint dark brown, remaining joint blackish brown, sternum, coxæ and feet reddish chesnut, abdomen darker chesnut.

I have some years ago collected this species near Moulmein, wherefrom Butler's type was received. If the second joint of the cheliceres of the type specimen has no indication of any other but two denticles, the occurrence must be looked upon as an accidental variation. The form of the body and of the cheliceres is so characteristic, that the species cannot be easily mistaken with any other. The following are the dimensions of an apparently full grown specimen:—

Total length of cephalothorax and abdomen, .....	26	m. m.
Length of the first terminal five joints of cheliceres, .....	13.5	" "
"   " cephalothorax, .....	9.	" "
"   " abdomen, .....	16.5	" "
"   " first pair of legs (without coxæ), .....	28.5	" "
"   " second, .....	15.5	" "
"   " third, .....	16.5	" "
"   " fourth, .....	24.5	" "
"   " caudal seta, .....	19	" "

##### 5. THELYPHONUS INDICUS, n. sp. Pl. XII. Fig. 5.

*An Thel. caudatus auctorum!*

*Upper side very finely granular; the first nine abdominal segments, centrally, with a partial, very fine carina; cheliceres mostly smooth, except on the second and third joints which are densely punctated; the length of the five terminal joints of the cheliceres equals that of the first seven or seven and a half abdominal segments; the length of one of the last pair of feet is very nearly equal to that of the cephalothorax and abdomen taken together;*





a short sharp edge in front of the lateral eyes, not continuing to the central eyes; second joint of cheliceres with six small, subequal denticles, third not longer than the fourth, with a little spine above and below; first lower abdominal segment very large, convex, centrally grooved.

*Hab.*—South India, Western Bengal, and the Malay Peninsula.

The cephalothorax is rather obtusely rounded, with the perpendicular front side perfectly smooth; the ocular tubercle is also smooth and very high, the circumference round each black central eye being depressed. From the ocular tubercle passes in a curve a rounded edge below the central eye, and after a short distance from this one joins a thin, but sharp and finely serrated, ridge which continues to the lateral eyes; the latter are pale amber yellow. The upper side of the cephalic thorax is flattened, indistinctly granularly rugose, with a rather small central groove. The thoracic portion is very finely granular and most minutely punctated, with the central depressions distinct, but the lateral ones ill-defined. The abdomen is one sixth broader than the thorax, very finely granular, with a fine central carina, scarcely traceable on the fourth and fifth segments; all have a posterior submarginal row of very minute granules; the last three narrow segments are smooth. The first segment on the lower side is very large, smooth, centrally grooved, with the posterior edge somewhat produced and broadly truncate. All the other segments are finely rugose; the second and third being very narrow.

All the joints of the cheliceres are internally distinctly pilose. The first joint is sparingly punctated; on the median anterior part it is transversely rugose, terminating with a sigmoid, pointed process. The second joint has an anterior rounded shovel-like edge provided with six subequal denticles, of which the two outermost are more distant from the other four than these among themselves; on the lower edge there are two unequal denticles. The third joint is short, with a small denticle at the inner upper end and a larger one on the middle of the lower inner edge. Both the second and third joints are densely punctated above and outwardly, and granular below; the following are mostly smooth. The fourth joint is slightly thicker than the third, with a long, pointed, anteriorly and posteriorly serrated process; it has no spine on the lower side. The fifth joint is again somewhat more inflated with a short, broad, depressed process, sharply serrated on both sides; on the front margin of the lower side there is a minute denticle. The sixth joint is slender, considerably longer than the process opposite to it; the upper and lower inner edges are, as usually, finely serrated, and near the tip there is on the upper edge a conspicuously enlarged tubercle.

The tarsi on one of the first pair of feet are shorter than the preceding metatarsus. The femoral joints of the other feet are compressed, granular





above, smooth below; the last foot is very little shorter than the whole body, and the caudal seta fully equals in length the latter, it is multi-articulate and densely pilose.

Upper side of cephalothorax and abdomen dull brownish black; cheliceres shining deep chesnut, feet and seta bright chesnut. Lower side,—cheliceres same as above, feet, sternum and first abdominal shield bright chesnut, rest of abdomen deeper chesnut.

Total length of cephalothorax and abdomen, .....	35.5 m. m.
Length of the five last joints of cheliceres, .....	17.3 " "
" " cephalothorax, .....	12.1 " "
" " abdomen, .....	22. " "
" " first pair of feet (with coxæ), .....	38 " "
" " second, .....	22. " "
" " third, .....	24. " "
" " fourth, .....	33. " "
" " caudal seta, .....	36. " "

The preceding description and the figures refer to a South Indian specimen which I had received from Major Beddome.

Another specimen was collected by Mr. Ball near Sirgúja in Western Bengal. It agrees with the former in every particular, except that the denticles on the second joint of cheliceres are somewhat stronger, and that the fourth and fifth joints are not so much inflated, both being only slightly thicker than the third.

Several other specimens were obtained by Mr. Wood-Mason's collector at Jahore, at the extreme south end of the Malay Peninsula. These also agree in every point of structure, the proportions of the body, &c., with the type form, but the first, second, third and fourth joints of the cheliceres are more densely punctated, while the tumidity of the fifth is intermediate between the South Indian and the Bengal specimen. The six denticles on the second joint of the cheliceres are well developed, and the process on the fourth is a shade broader than in either of the two Indian specimens.

Judging from the references to the two localities Madras and Bengal, it would seem probable that the present species had been alluded to by Mr. Butler under the name *Th. caudatus*, though the remark referring to the broad body and depressed abdomen would rather apply to the next species.

But here the question arises what is *Thelyphonus caudatus* = *Phalangium caudatum* of Linnæus? Mr. Butler (loc. cit.) gives among others as the reference of *T. caudatus* Linné's Syst., and Fabricius' Ent. Syst. If anybody will look through these references, he will, I think, find very little satisfaction in the definition of *T. caudatus*.

As habitat of the species, Mr. Butler gives Ceylon, Madras, Bengal and Tenasserim, and says that it is a broad, well marked form, having





six teeth on the second joint of cheliceres and a very depressed\* abdomen, and that it has been confounded with two, if not three, other species! Now I confess after having carefully looked over the references alluded to and Mr. Butler's notice, I have not succeeded in tracing Linné's *T. caudatus*, nor will, I think, anybody else do so; and if the species has been confounded by older writers, as no doubt it was, Mr. Butler has only added his share to that confusion.

Let us see whether and how far we might be justified to adopt the name *T. caudatus*.

Linné named a species in 'Syst. naturæ 619, n. 2' *Phalangium caudatum*, which he characterises as '*chelis ramosis, ano setifero.*' In Museum Lud. Reg., 1764, p. 426, the celebrated author describes the same species in detail and gives 'habitat in Java,' quoting at the same time Seba's figures 7 and 8 on pl. 70 of his Thesaurus. To determine anything according to Seba's figures is an altogether hopeless case, but we know that Linné's description of *Ph. caudatum* was drawn up after a Javanese specimen, and we must, therefore, look to Java for Linné's *Ph. caudatum*. When we see through our literature we find, I think, only two descriptions and figures, which can bear out any comparison with Linné's type, and these are Lucas' *Th. caudatus* ex Java, and Koch's *Th. proscorpio* ex India orientali et Java.

In reading carefully over Linné's description, I think, the passages corpus.....ferrugineum,.....chelæ.....articulis 5 constructæ.....  $\beta$  (*i. e.* articulus tertius) subrotundus, inermis,...  $\gamma$  (*i. e.* art. quartus) subrotundus..... are decidedly more in favour of Lucas's than of Koch's figure. If we, therefore, wish to retain Linné's name we can reasonably, I believe, only adopt it in the form in which it had been introduced into science by Lucas in his Monograph of the genus in Guérin's Mag. de Zoologie for 1835. Any other meaning, which we force upon Linné's name, is more arbitrary than this, still I do not wish to leave altogether the references of previous authors to this name without notice.

I have already (p. 133) stated the reasons, which appear to me to indicate that Koch's reinstated *Th. proscorpio* of Latreille is distinct from Lucas' *Th. caudatus* of Linné.

Fabricius copied Linné. In Syst. entomologiæ, 1775, p. 441, he only added 'habitat in India orientali,' and I do not think it improbable, that several specimens of *Thelyphoni* had been sent by the French and German Missionaries from South India to European Museums.

Pallas' two figures most probably refer to *Th. scabrinus*. He also had Indian specimens.

Latreille, both in his Hist. nat. des Crust., p. 130, pl. lx, fig. 4, and in his Gen. Crust., p. 130, evidently confounded various species from differ-

\* Linné says: abdomen ovato-oblongum, supra et subius gibbum.





ent parts of the world under one name. He does not give any descriptions.

The figure in Guérin's *Régne animale* would, if correct, represent a species distinct from *Th. Antillanus*, Koch, as already (p. 128) observed.

Douges and M. Edwards' figure in their edition of the *Régne animale* most likely represents Koch's *T. proscorpio*.

I do not think it would be profitable to go further with this review, even if I had all the old books at hand. I have looked over many of these *historical* figures and descriptions, and if anybody wishes to study the history of the genus, he might do the same, but if he wishes to *determine his species*, he will find it much more profitable, to ignore every reference written prior to 1835, the date of Lucas' Monograph of the genus.

#### 6. THELYPHONUS BEDDOMEI, n. sp. Pl. XII. Fig. 6.

*Upper side of body granular, of cheliceres sparsely punctated; length of the five terminal joints of cheliceres equal to the first eight abdominal segments, these have on the upper side a median thin ridge; second joint of cheliceres with seven denticles on the upper edge; third joint on upper side shorter than the fourth, above and below with a spine; the length of one of the last limbs very nearly equals the total length of the body; a very fine short ridge in front of the lateral eyes; first lower abdominal segment enlarged, along the middle indistinctly grooved, with the posterior edge centrally much produced and rounded.*

*Hab.*—Annamally mountains, South India.

The cephalothorax is much higher anteriorly than posteriorly, rounded in front, with the ocular tubercle prominent, smooth, its posterior portion being separated by a fine incomplete transverse groove from the intra-ocular one; central eyes of moderate size, dull yellowish; lateral eyes amber coloured, with a short, very thin and finely serrated ridge in front of them, disappearing already at the middle of the distance between the lateral and central eyes. Cephalic thorax granularly rugose, shining; thoracic portion conspicuously broader, more finely granular, dull. Cephalic groove deep, median thoracic and postocular pits and lateral groove well developed, smoothish, shining.\* Sternum elongately semi-elliptical. Abdomen rather broadly ovate and depressed, above granular, with very slightly raised posterior and lateral margins, the first eight segments with a central longitudinal fine ridge. Sides granularly scaly. Lower surface almost smooth, with sparse fine pits; first segment much larger than any of the others, depressedly convex, longitudinally indistinctly grooved, and with the central posterior edge considerably and rather narrowly and roundly produced.

First joint of cheliceres with the usual anterior process, provided with a rapidly attenuated sharp point. Second joint on the upper edge with seven denticles, of which the outermost is the smallest and the median on





the inner anterior corner the largest; below with two subequal denticles. Third joint with a distinct denticle on the upper and a slightly larger one on the lower side, the latter is accompanied by a minute sharp granule. These two joints are above and below rather densely punctated. The fourth joint is more swollen and larger than the third, with a depressed, anteriorly and posteriorly sharply serrated process, and a little spine on the median anterior lower edge. Fifth joint somewhat thinner than the previous, with a quite similar process than on the preceding joint, but slightly shorter, and also with a denticle on the lower side. Sixth joint, or movable claw, long, with the upper and lower inner edges serrated.

Tarsi of first pair of feet slightly shorter than the preceding metatarsus. All other feet with compressed, and on the upper side finely granular, femoral joints. Caudal seta slender, with rather elongated, hairy joints; its length equals that of the whole body.

Body including the seta, above, dark brown, on the cheliceres and on the cephalic portion of the thorax shining blackish brown; feet chesnut; lower side, deepest brown on the cheliceres and on the posterior end of the abdomen, dark brown on the first joint of cheliceres and on the anterior part of the abdomen, and lighter brown on the coxæ of the feet and on the sternum.

Total length, .....	40.5 m. m.
Length of the five terminal joints of cheliceres, .....	19 " "
" " cephalothorax, .....	14.5 " "
" " abdomen, .....	25. " "
" " first pair of feet, .....	42.5 " "
" " second, " .....	23.2 " "
" " third, " .....	25.5 " "
" " fourth, " .....	28. " "
" " caudal seta, .....	39.5 " "

The number and distribution of the denticles on the second joint of the cheliceres, the broad abdomen, the form of the first lower abdominal segment, and the slightly longer limbs distinguish the present species from the previous.

#### Explanation of plate XII.

Fig. 1. *Thelyph. scabrinus*, n. sp., p. 130; 1a, right chelicer, enlarged twice the nat. size; 1b, four anterior lower abdominal segments.

Fig. 2. *Thelyph. Assamensis*, Stol., p. 133, right chelicer, enlarged twice the nat. size; 2a, four anterior lower abdominal segments.

Fig. 3. *Thelyph. (conf.) angustus*, Lucas, p. 134; 3a, left chelicer enlarged three times the nat. size; 3b, four anterior lower abdominal segments, enlarged twice the nat. size.

Fig. 4. *Thelyph. formosus*, Butler, p. 137; 4a, right chelicer, and 4b, first four lower abdominal segments, both enlarged twice the nat. size.

Fig. 5. *Thelyph. indicus*, n. sp., p. 138; 5a, right chelicer, in twice the nat. size; 5b, four first lower abdominal segments.

Fig. 6. *Thelyph. Beddomei*, n. sp., p. 142; 6a, left chelicer, in twice the natural size; 6b, four first lower abdominal segments.



NOTE ON THE GENUS GYMNOPS, W. BLANF., (LACERTIDÆ),—  
by W. T. BLANFORD, F. G. S., C. M. Z. S.

[Received 12th April, 1873.]

In the Journal of the Asiatic Society of Bengal for 1870, Vol. xxxix, Pt. II, p. 357, I proposed to distinguish a new and peculiar form of *Ophiops* from Chhatisgarh by the subgeneric title of *Gymnops*. The species, to which I applied the name of *Ophiops (Gymnops) microlepis*, differs from the typical forms of *Ophiops* found in India and Western Asia in its more elongate proportions, longer tail, single postnasal and minute dorsal scales.

Dr. Stoliczka has since obtained the same species in other parts of India and especially in Kachh (J. A. S. B. 1872, Vol. xli, Pt. II, p. 90 and Proc. A. S. B. 1872, p. 74), and he has adopted the name *Gymnops* as a generic term, founding the distinction from *Ophiops* mainly on the difference in the character of the dorsal scales, which are much smaller and more granular than in true *Ophiops*, although they are distinctly keeled and imbricate. Quite recently Proc. A. S. B., July 1872, p. 126, Dr. Stoliczka has described a second species *Gymnops meizolepis* from Kalabagh on the Indus. This has somewhat larger scales than *G. microlepis*, but it possesses the same elongate form, the tail from the anus being more than twice the length of the body, and it again presents the peculiarity of a single postnasal instead of two or three as in *Ophiops*.

But the name *Gymnops*, whether considered as generic or subgeneric, cannot be retained for this type of naked-eyed lizards, as it has been twice employed in ornithology, having first been applied by Spix to a South American genus of Raptores, for which, however, an earlier generic title viz., *Daptrius* existed, secondly by Cuvier to a Malayan genus of *Sturnidæ*, allied to *Eulabes*.

Under these circumstances I propose to change the name of the Indian lacertian genus, above specified, to *Chondrophops* in reference to its somewhat granular scales.



ON *AQUILA BIFASCIATA* AND *AQUILA ORIENTALIS*,—  
by W. E. BROOKS, C. E., ASSENSOLE.

[Received 8th April, 1873.]

I have long had in my possession two specimens of *Aquila orientalis*, Cab., one sent me by Dr. Bree and labelled by Mr. Gurney, and the other from Mr. Dresser. The latter is a Sarepta specimen from the Volga region, and the former, from the Dobrudscha.

On returning the Dobrudscha example, which Dr. Bree had submitted to Mr. Gurney, the latter sent the following memorandum.

"The eagle which I have ticketed '*Aquila orientalis*, Cab.,' is identical with that so often sent in collections from Sarepta near the mouth of the Volga, and is in fact the only species of Eagle which I have seen from that locality. I have hitherto been in the habit of calling this eagle '*Aquila clanga* of Pallas,' but as Pallas does not appear, by the description of his *Aquila clanga* in the Zoog. Ross. As., Vol. I, p. 351, to distinguish between this eagle and the smaller spotted eagle *A. nœvia*, and as his measurements, which are given in old French feet, inches, and lines, (for a scale of which see Finsch and Hartlaub's Vögel Ostaf.) agree better with *A. nœvia* than with the present species, it will perhaps be best to adopt for the present species the name of *Aq. orientalis*, proposed by Cabanis in the Journal für Orn. 1854, p. 369, (note), which though not very well chosen is the next in order of priority and the earliest that can with certainty be applied to this eagle exclusively. The specimen now sent appears by its measurements to be a female, and is in adult plumage; the immature birds of this species being spotted in precisely the same manner as those of *Aquila nœvia* which is well shewn in Yarrell's figure of the 'Spotted Eagle.'"

I quote this memorandum by Mr. Gurney to shew upon what good authority one of my specimens is named *Aquila orientalis*, and the other, sent me by Mr. Dresser labelled *A. clanga*, Sarepta, closely resembles it.

Mr. Gurney's statement, that the immature is spotted like *Aquila nœvia*, is, as far as I can see at present, a mistake; for we have the bird in India (*A. bifasciata*) and it never in any way resembles *A. nœvia*.

I have, from the first, been struck by the great similarity of these two specimens to our Indian *Aquila bifasciata*, Gray and Hardwick; but had not till the other day obtained Indian specimens according in every respect, to a feather, with the European examples of *A. orientalis*, above referred to. Now I have, and the accordance is so beautifully perfect, that there is no



alternative, but to come to the conclusion that *A. orientalis* is identical in every respect with *A. bifasciata*.\*

I have now, therefore, three European killed examples of *A. bifasciata*; the third being that sent me by Capt. Elwes, and referred to in "Stray Feathers," Vol. I, p. 291. The two first are in nearly mature plumage, and the third is quite mature; and is the finest specimen of the bird I have seen.

The two sent as "*A. orientalis*" have only slight indications of the nuchal patch; otherwise I should have recognized them at the first glance as *A. bifasciata*, as was the case with Capt. Elwes's Bosphorus bird. This term has, I believe, priority over *A. orientalis*, Cabanis, and if so will be retained for this eagle.

The application of Pallas's term "*A. clanga*" to the same species by some European writers is, I believe, an error, if I read the original description correctly. It appears to refer to our Indian spotted eagle which we accept as *Aq. navia*, and which I believe to be the true *navia*. Klein, whose work is dated 1750, is the author of the term *Aquila clanga*, and Pallas quotes and adopts this *synonym* in preference to the older term *Aquila navia*, Schwenckfield. This term Pallas also quotes under the head of *Aquila clanga*, but as a synonym. Schwenckfield's work is dated 1603.

In a letter received the other day from my friend Mr. Anderson, he records the occurrence of a lineated *A. Mogilnik* at Aden, which was stunned by flying against the telegraph wires there.

I may as well mention here that the Indian Imperial Eagle, to which I applied Hodgson's term of *A. crassipes*, is identical with the East European bird, *A. Mogilnik*, better known as *A. imperialis*, but the former is the prior term.

I compared our bird with an adult Turkish specimen sent me by Dr. Bree. Mr. Gurney also came to the same conclusion, after comparing the adult Indian birds, I had sent home, with European examples.

The West European Imperial Eagle is, however, quite distinct and is now known as *A. Adalberti*, Brehm. This is the species said to have no lineated stage, and having, when adult, an excess of white on the scapulars and ridge of wing.

\* [Mr. V. Ball and I had the pleasure of comparing the two specimens of *A. orientalis*, referred to by Mr. Brooks, with a series of Indian *A. bifasciata*. They undoubtedly appear to be perfectly identical, both in structure and coloration. If the determination of those two specimens as *A. orientalis* is correct, (and upon such good authority, as Mr. Gurney, it ought to be), there can be no doubt that the two species must be considered as identical. F. Stoliczka.]



I sent a fine series of our Indian *Aquila hastata* to the Norwich Museum. Mr. Anderson also sent one example in mature plumage.

Besides these we sent others to ornithological friends. I hear from Messrs. Gurney and Dresser, that the adult plumage of this species is not to be distinguished from that of the small Pomeranian spotted Eagle which they term the true *Aquila nœvia*.

They assert, however, that though the adults are alike, the immature birds differ.

This is a point for further investigation, but the perfect accordance of the adults leads me to expect the same in the immature birds. The connection between the immature and the adult is the first point to be established, and this can only be done by the field naturalist.

One of my ornithological friends informs me that the immature of *A. orientalis* (which we have shewn is *A. bifasciata*), has spotted plumage like that of *A. nœvia*; another friend informs me he has received the immature bird, and it "is strangely like *A. bifasciata*!" Now the latter eagle is *not spotted*, and the "doctors," who are both men of repute, "differ."

These points will all be cleared up it is to be hoped before long; and we shall perhaps have the natural history of the Eagles as clear and as correct as that of the common Rook, with little or nothing else to be learned. At present the Eagles appear to be in a state of dire confusion, which the English naturalists are daily making worse.\*

\* Since the foregoing was written, Capt G. F. L. Marshall, who is much interested in this subject, came and examined the series used. He fully concurred in the identification of *A. orientalis* with *A. bifasciata*, and was even more positive than I was that the Danzig killed *Aquila hastata* was indeed that species. It will be remembered, it was sent to me labelled "*A. nœvia*." My English Ornithological friends with whom I communicated are incredulous regarding my identifications, and I, therefore, refer to my friend's corroboration. If all fails to convince them I shall have the series exhibited at a meeting of the Zool. Society.





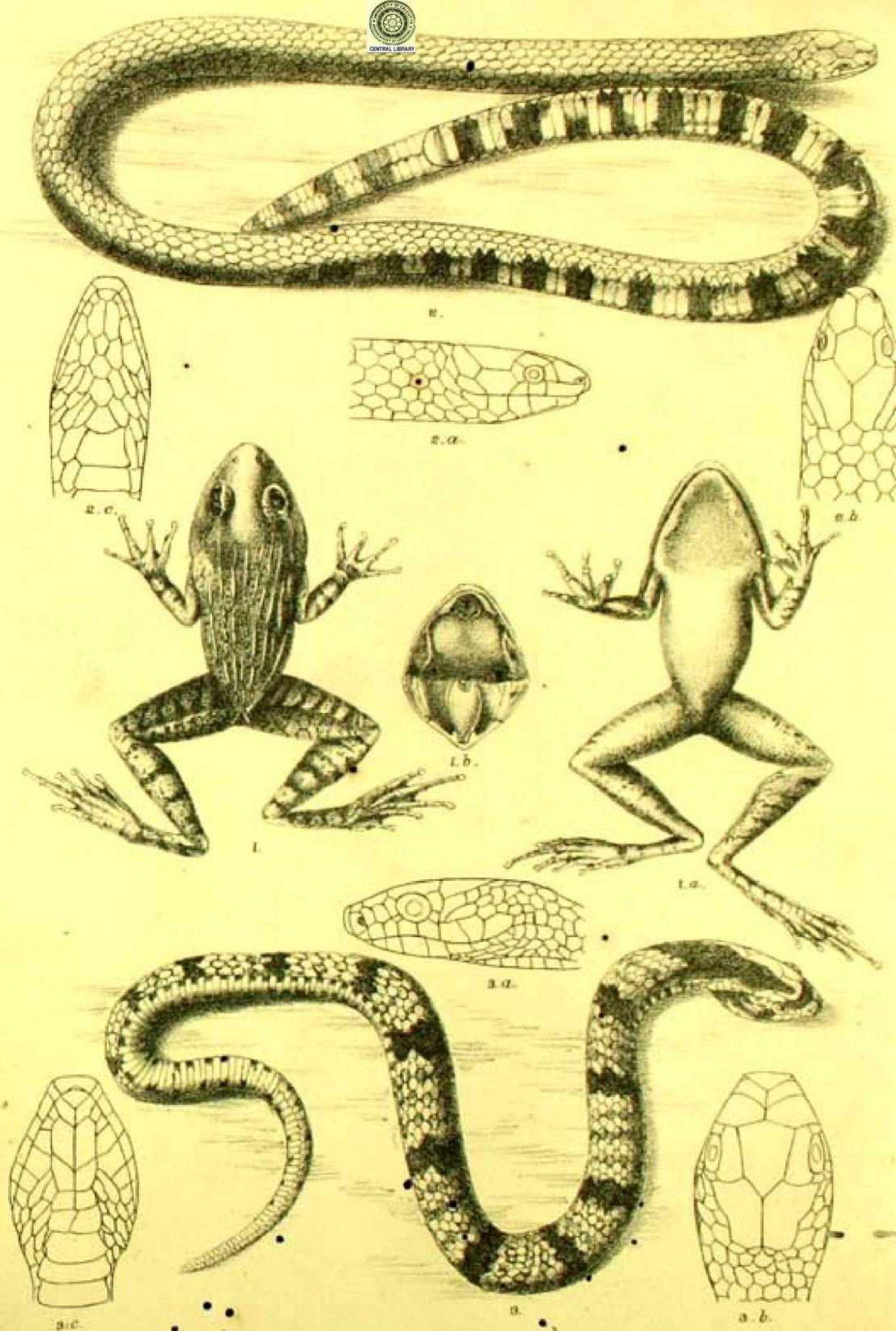












Figs. 1, 1a, 1b. *Rana plicatella*, n. sp., Penang, p. 116.

Figs. 2, 2a, 2b, 2c. *Calamoria Stahlknechti*, n. sp., Sumatra, p. 119.

Figs. 3, 3a, 3b, 3c. *Simotes catenifer*, n. sp., Malay Peninsula, p. 121.





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Part II.—PHYSICAL SCIENCE.

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A CONTRIBUTION TOWARDS A MONOGRAPH OF THE INDIAN PASSALIDÆ,—  
by DR. F. STOLICZKA.

[Received 27th April, read 7th May, 1873.]

Some years ago, when I visited my veteran friend Dr. J. J. Kaup in Darmstadt, I found him, quite unexpectedly, busily engaged with PASSALIDÆ. He urged me most strongly to collect Indian specimens, which I did; but the collection progressed so very slowly,—in spite of the very numerous applications which I made for assistance,—that Kaup's Monograph of the family appeared early in 1871\* without my little contribution in the way of Indian materials.

When I saw that the geographical distribution of the PASSALIDÆ is so very peculiar and interesting for the study of our Indian fauna, I resolved to continue my researches, and to publish as far as possible a revised Monograph of all the Indian species, with such little additions to the anatomy and development, as might be obtainable. Of these points I shall, however, not speak on this occasion; they will be fully treated in my Monograph, which will be accompanied with all the necessary illustrations. I will merely mention that in India we meet with PASSALIDÆ in those districts only which have a Malayan fauna. No species is as yet known from the Himalayas west of Nipal, or from any part of Central India or the Panjáb.

The object of the few following lines is chiefly to give a list of the Indian species with authenticated localities, together with diagnoses of the new species which had lately come under my observation. I am sorry that I cannot complete more fully the task which I undertook, but in the middle of pre-

\* Berliner Entomologische Zeitschrift, vol. xv.



parations for an expedition to Central Asia I am not allowed to do more, than to shew those who assisted me that their materials had been duly appreciated. My old friend Dr. C. Felder, the Lord-Mayor of Vienna, has sent me the whole of his collection of PASSALIDÆ for examination, and Dr. L. Redtenbacher, the Director of the Vienna Museum, sent me a great number of eastern species. These are rare instances of liberality and true interest in the work. My thanks are further due to Messrs. W. S. Atkinson and J. Wood-Mason, Messrs. Peal (Assam) and Mandelli (Darjeeling), Major H. H. Godwin-Austen, Major Beddome, Mr. Stahlknecht of Singapore, Mr. Theobald, Rev. Baker, Dr. Cameron, the late Dr. Walter Abbey and the late Capt. Mitchell of Madras. The original collection in our Museum contained only five of the commonest species.

In recording the species I will follow Kaup's last Monograph on the subject. Whatever opinion various naturalists may have regarding the mode of classification which that distinguished author has adopted, I do not think that they will find much fault with the limitation and characteristics of the genera\* and species. Undoubtedly that Monograph is the most complete and the most remarkable paper which the philosophical school of naturalists has in late years produced. I am now not prepared to say anything for or against it, but I will do so in my Monograph, when I hope to have examined a larger number of PASSALIDÆ, than I had been able to do up to the present. Such mental productions† must not be disposed of with prejudice, they are entitled to receive a fair trial and a full share of all opinions *pro* and *con*, before we side one way or the other. Nobody will, after careful perusal, deny the fact, that Kaup's classificatory arrangement has in many respects very considerable advantages; it is easy and practical, but time and research must shew whether it can be adopted or not. Whenever I shall have any scruples against generic definitions, or against the quinquennial divisions, I shall state my reasons without any reference to the validity of the whole system.

Before proceeding to the details I have only to mention that I shall include in the present list all the species known to occur in the East Indies, *viz.*, India proper (Vorder-Indien), with Eastern Bengal, Burma, and the Malayan Peninsula as far south as Singapore (Hinter-Indien).

### *Sub-fam. AULACOCYCLINÆ.*

#### 1. AULACOCYCLUS PARRYI, Kaup.

I received numerous specimens from Malacca.

\* Even in the very limited sense in which the author defines them.

† For a short exposition of the principles of the system, and a brief discussion thereon, see Proc. of the Society for May, 1873.



## 2. CERACUPES AUSTENI, n. sp.

This species possesses all the characteristics of the genus, as given by Kaup. Total length 22 m.m., width of head 4.8, of prothorax 6.6, of wings at the shoulders 6.8, length of elytra 12.3 m.m.

In general structure it is very like *C. fronticornis*, but the clypeus-horn is obtusely rounded at the end, not emarginated, the upper concave edge is punctated, longer and narrower than in that species. The processes on the jaws are posteriorly flattened and rugosely striated, anteriorly convex and smooth. The lateral scar of the prothorax forms a punctated S. Scutellum smooth, waist at the sides densely punctated.

The furrows of the wings are coarsely punctated, without any perceptible hair. The metasternum is convex, generally smooth, only along lateral margins finely punctated. The median tibiæ have externally two spines, the posterior ones only an indication of a small point.

*Hab.*—Naga hills, North Eastern districts of Bengal. Major H. H. Godwin-Austen found a couple of specimens at an elevation of 6000 feet.

I have never received *C. fronticornis* from any of these districts. It must come from the Chinese portion of eastern Tibet, for western Tibet has no forests.

## 3. COMACUPES CYLINDRACEUS, Perty.

*Hab.* Johore, at the southern end of the Malay Peninsula. One specimen measures: total length 26.4 m.m., width of clypeus 5.5, (Kaup gives 7 m.m.) width of prothorax 8, (Kaup gives 9), length of elytra 14.9 m.m., (Kaup gives 25½, which is clearly a mistake for 15.5 m.m.).

Kaup's specimens from Malacca appear to have had a much broader clypeus and prothorax, but the two Johore specimens which I examined agree with the description of the species in every other detail.

## 4. COMACUPES MASONI, n. sp.

Total length 30.5 m.m., width of clypeus 6.4, of prothorax, or shoulders, 9.1, length of elytra 16.75 m.m.

Resembles *C. basalis*, but is much more slender; upper lip with the front surface sloping, but scarcely indented at the edge; densely hairy. Clypeus densely punctated and shortly hairy, except in front of the horn, which is large, compressed, strongly projecting in front and very slightly elevated, with an obtuse end sharpened from below, its posterior end is almost vertical without a free point, the upper ridge is obtusely rounded, except for a short distance along the middle which is concave and rugose. Prothorax with the lateral scar small, smooth, with a little dot in front of it, as in *C. cylindraceus*, but in the present species the marginal furrow is in front near the corner almost angularly bent in. The furrows on the wings are slightly more coarsely punctated, than in the last species.



Scutellum and the waist at the sides and the whole of the lower side densely punctated and shortly hairy. Lower lip densely and coarsely punctated and hairy, with barely an indication of a central carina. The last four abdominal segments almost quite smooth. Middle and hind tibiae each with a strong spine.

*Hab.*—Johore, obtained by Mr. J. Wood-Mason.

Kaup quotes *C. cavicornis* from Malacca and Penang. I have not seen it, but there is a specimen of a *Comacupes* in Dr. Felder's collection, evidently belonging to a new species.\* Its locality is given as Bras., which clearly means Brasilia, there is, however, no such form described from America, the specimen came much more likely somewhere from the Philippines.

5. *TENIOCERUS PYGMAEUS*, Kp.

Malacca. I have as yet obtained only a single specimen.

6. *TENIOCERUS BICANTHATUS*, Guér.

Johore, north of Singapore.

7. *TENIOCERUS BICUSPIS*, Kp.

Sikkim, Assam and Cachar hills. Common. Kaup also gives Malacca.

*Sub-fam. ERIOCNEMINÆ.*

*First group. SOLENOCYCLEE.*

8. *PLEURARIUS BRACHYPHYLLUS*, n. sp.

Total length 43, width of clypeus 9·8, of prothorax 12·5, length of elytra 14·2; total length varying from 41 to 44 m.m.

\* *Comacupes Felderi*, n. sp. Total length 22·5, width of clypeus 5, width of prothorax 6·6, of shoulders 6·8, length of elytra 13·2 m.m. Upper lip in front and laterally deeply concave, as in *Aulac. teres*. Jaws with the upper of the three front teeth very small. Clypeus smooth, with a fine groove along the anterior straight margin. Horn situated far behind, as in *basalis*, rising almost vertically, slightly inclined forward, behind with a convex, smooth, simple and rounded edge; anteriorly below the point it is first vertically truncated, then concave, falling with a broad surface to the large forehead. Ocular ridge sharply angular in the middle, terminating with a small sharp point in the anterior corner of the clypeus.

Prothorax with a median groove, deepest about the centre, and a punctated, complete marginal furrow, only slightly bent in anteriorly; lateral scars small, sub-semilunar, deep, finely punctated. Wings in the furrows indistinctly punctated, not hairy. Scutellum smooth, waist at the sides finely punctated, below entirely smooth as is also the case with the metasternum and the abdominal segments. Tongue with a central carina and with the lower halves of the sides somewhat concave and roundly dilated. Lower lip smoothish in the middle, with a central impressed projection in the front edge; its lateral branches densely punctated. Tibiæ of the front feet very broad, each with six denticles; middle and hinder tibiæ stout, each with a sharp spine.



Jaws bidentate at the end; upper lip<sup>3</sup> truncated in front, covered with red stiff hairs. Antennæ long, with only three short terminal lobes. Clypeus uneven, but not punctated; the central horn is flatly convex, smooth, transversely very elongately subtriangular, anteriorly with a small projection, ending in a small free point, from which diverge in a slight curve the frontal ridges, terminating with distinct tubercles near the front edge. This frontal edge has a sharp process above each of the two lateral margins of the upper lip, the left appears to be occasionally a little larger than the right one, recalling a similar structure in *Basilianus*. The two frontal tubercles are connected by a low ridge and the margin between them is deeply concave. Supraocular ridges with a sharp point above each eye, flattened in front, and externally at each corner terminating with a small spine.

Prothorax moderately convex, with a distinct central groove, but not extending anteriorly to the margin; marginal furrow narrow, finely punctated; lateral scar forming a shortly elongated and smooth impression.

Scutellum at base finely punctated and hairy, along each side of the centre finely strigated. Waist laterally densely punctated, below smooth, somewhat transversely rugose, but without any special scar.

Elytra with the shoulders somewhat swollen and projecting, smooth; all the furrows distinctly punctated.

Tongue long, with a median and two marginal ridges, strongly contracted in the lower half. Lower lip with its branches entirely punctated and hairy, slightly depressed in the middle.

Metasternum laterally densely punctated, but the posterior sloping corners are smooth, which is also the case with all the abdominal segments.

Prothorax at the lateral lower sides, and the median femora, covered with dense, long, rufous-brown hair; anterior femora, sides of metasternum and hinder tibiæ a little less hairy.

*Hab.*—Nilgheries and Malabar. I received originally two specimens of this species from the Madras Museum, but since then several others have been sent to me by Major Beddome and Rev. Baker.

Kaup describes a single species, *P. pilipes*, from Sumatra. The generic characteristics have to be slightly altered, but in all essential points the South Indian species agrees with *Pleurarius*.

#### 9. SEMICYCLUS REDTENBACHERI, n. sp.

Total length 25·4, width of clypeus 5·2, of prothorax 7·3, of shoulders 7·1, length of elytra 14·3 m.m.

Jaws rather short, each with three denticles; antennæ moderately elongated, the three terminal lappets well developed and equal; upper lip squarish, hairy, very slightly concave at the front edge.

Clypeus rugose, punctated on the forehead, front edge very slightly emarginate in the centre, and with a small projection above the edges of the



upper lip. The horn originates in a slightly convex smooth tubercle, and extends freely and almost horizontally to near the front edge, its base is posteriorly and at the sides surrounded by a slight furrow, and from the point where the horn becomes free originates on either side a low, indistinct ridge, which makes a curve anteriorly and terminates in a small tubercle some distance short of the marginal projections. Supracular ridges undulating, each with a sharp point above the eye and another at the anterior corner of the clypeus.

Prothorax convex, with a central groove; marginal furrow incomplete, punctated, terminating anteriorly, some distance from the central line, with an elongately ovate scar. Lateral scar large, slightly impressed, composed of a number of irregularly arranged, coarse pits; a few dots exist near the anterior corner.

Scutellum very finely punctated at the base; waist laterally densely punctated, below nearly smooth.

Elytra rather depressed above, but comparatively high; all the furrows coarsely pitted; each shoulder with a tuft of brown hair, which also extends a little posteriorly along the margin.

Tongue with three ridges, minutely punctated, tridentate at the front edge which is slightly narrower than the base. Lower lip transversely rather elongated, smooth, convex, with a rounded scar at each end; the lateral branches densely punctated. Metasternum on the posterior sloping corners coarsely punctated. Abdominal segments with an oblique furrow on either side, but in other respects nearly smooth.

*Hab.*—Ceylon. The only specimen examined is in the Vienna Museum; it was obtained by the late Mr. Zelebor during the Novara expedition.

The species almost perfectly agrees with the characteristic of the genus as given by Kaup.

#### *Second group. LEPTAULACEÆ.*

Out of the five genera distinguished by Kaup only one is represented in India, namely *Leptaulax*. It seems to be a little too closely allied to *Ciceronius*, and still more so to *Didimus*. From the last it is stated to differ by the single denticle in the centre of the front edge of the clypeus, while *Didimus* has two; but I have in a few instances also observed two denticles in both *Lept. bicolor* and *dentatus*. Of course we may say, what is in *Didimus* the rule, is an exception in *Leptaulax*, still it looks rather a little arbitrary to define genera in such cases. However, as I have not a single one of the species of *Didimus*, described by Kaup, for comparison, I do not wish to propose any changes in the genera, as characterized by him. Looking at *Leptaulax* in Kaup's sense, it seems to me somewhat doubtful that the number five will suffice to include all the different forms which must belong to the genus. The following details, taken with those of Kaup, may speak for themselves.



10. *LEPTAULAX DENTATUS*, Fabr.

The typical small form was obtained from Sikkim, Bútán, Assám, Tennasserim (at Mergui) and from Johore. In the Vienna collections it is represented from nearly all the Philippine islands.

The larger form, or *L. Timorensis*, is also very abundant in Sikkim (between 500 and 1000 feet), Bútán, Assám, Naga hills, Pegu (near Tonghú), and on the Andaman islands. It grows up to 37 m.m. I had very large numbers of both forms for comparison, and came to the conclusion that no definite characters exist by which the two species could be separated. I have all intermediate sizes from 21 to 37 m.m.

11. *LEPTAULAX BICOLOR*, Fabr.

Very common in Sikkim and through the whole of the Malayan Peninsula, as well as on the Andaman and Nicobar islands, in Malabar and in Ceylon. From the last locality two specimens exist in the Vienna Museum collection under the name of *Nietneri*, M. C.

A peculiar small variety, possessing cross bars in the lateral furrows of the elytra, instead of simple dots, occurs at Johore.

12. *LEPTAULAX PLANUS*, Illig.

This is, I think, a good species, the smallest of all our eastern PASSALIDÆ. It is very much more depressed, than either of the previous species, and in proportions and relative size of the prothorax and of the elytra it more closely resembles *dentatus* than *bicolor*, of which it is stated to be a synonym. Specimens from Java, Johore, and Malacca, whence I have lately obtained large numbers, measure between 13 and 14 m.m., but a somewhat larger variety occurs in Burma and on the Andaman islands. Specimens from these last localities measure 18 m.m., they are in almost every other respect identical with typical *planus*.\*

Of the third group, the ERIOCNEMINÆ, no species as yet occurred within our limits. I received *Vellejus Moluccanus* from Amboina, *Eriocnemis monticulosus* from Sumatra, and gigantic specimens of *Erioc. tridens* from Java, but none from Siam or Malacca, which localities are also given by Kaup. The last species will have, therefore, to be included in our list.

*Fourth group. MACROLINÆ.*13. *MACROLINUS LATIPENNIS*, Perch.

Malacca; apparently rare.

14. *MACROLINUS WEBERI*, Kp.

Johore; a single specimen from Mr. J. Wood Mason.

\* In Dr. Felder's collection I find a Malacca specimen named *paxilus*?





Dr. Redtenbacher (Coleopteren, Reise Oest. Fregatte Novara, 1867, p. 49) gives *Mastachilus politus*\* from Madras. There is a specimen of that species in the Vienna Museum collection, marked *Ind. or.*, and is most likely the one referred to by Redtenbacher. I very much doubt, however, that it is Indian. It was probably received from the Madras Museum, or from a collector, during the stay of the Novara at Madras. My reason for doubting the correctness of the Indian locality is based upon an observation which I made. I asked the Curator, the late Capt. Mitchell, for the loan of any specimens of *Passali*, he might have in the Madras Museum. I was promptly responded to, and shortly after received four specimens of *Passali*. Two proved to belong to a new species *Pleurarius brachyphyllus*, and the two others were *Solenocyclus exaratus* (known from Madagascar) and *Mastachilus polyphyllus* (from Australia).† After detailed inquiry Capt. Mitchell informed me, that the two first specimens (distinguished by numbers attached to them) were truly Indian, from the Nilgherries, but that the localities of the two others were unknown. They had been received from some old European collection. It seems to me very probable that something similar happened with the specimen of *M. politus*, obtained by the Novara at Madras.

Kaup describes *Macrolinus Waterhousei* and *Episphenus Moorei* from Ceylon. I have not seen either of these.

#### *Fifth group. ACERAIÆ.*

Of the five genera, *Laches*, *Gonates*, *Aceraius*, *Cetejus*, and *Basilianus*, only the third and fifth have as yet been found in India; they are common and numerous, and the specific number of five will, I am sure, run short for what is in this case really required for specific determination, unless the genera are somewhat differently defined and grouped.

Of the other genera I have examined a few interesting species. Among these is one which Kaup would probably call the first, *moderately convex*, species of *Laches*, and the largest species of *Cetejus*; both answer exactly the characters of the respective genera. I add descriptions of the two new species‡ in a foot note.

\* Originally described by Burmeister from Van Diemen's Land.

† The Vienna Museum possesses two specimens of *polyphyllus* from China.

‡ *LACHES GRACILIS*, n. sp. Total length 26, width of head 5.5, of prothorax 7.5, of shoulders 7.6, length of elytra 15 m.m. Whole body moderately convex.

Upper lip almost quite straight in front; left jaw barely longer than the right one. The three first lobes of the antennæ short, the fourth slightly shorter than the fifth. Clypeus on its posterior half rugosely punctated; the short horn rises from the anterior central edge of a transversely elongated, smooth protuberance; from it proceed under a narrow angle the frontal carinæ, each terminating in an elongated smooth tubercle, or rather short ridge, connected by a very fine carina. The marginal tubercles of the clypeus are pointed, depressed, placed nearer to each other than the width of the



A specimen of *Gonates naviculator* from the Moluccas, in Dr. Felder's collection, has the middle frontal carina very distinct, while two others of upper lip, they are unequal, the left being slightly larger than the right one; they are not in any way connected with the frontal tubercles, but a smooth concave field proceeds from each of these to the respective ocular ridge. The latter is angular or sub-tubercular above each eye, and anteriorly formed by a thin carina, terminating on the angle of the clypeus with a little spine.

Prothorax somewhat broader posteriorly than anteriorly, with a very distinct central groove; marginal furrow very narrow, with a minute punctation; lateral scars vertical, subovate, punctated; a group of distinct dots also exists above each anterior corner.

Scutellum smooth; waist laterally punctated. All the furrows of the elytra coarsely punctated, without a trace of any kind of hair.

Tongue tricarinate, the middle carina the strongest; laterally slightly concave. Lower lip convex, smooth, with a transversely elongated, small, marginal, smooth scutellum between it and the tongue; branches coarsely punctated. Waist, below, with a small oblique, ovate scar on either side. Metasternum on the posterior part sparsely, on the sloping corners densely punctated. Abdominal rings each with a linear, punctated scar on either side. Prothorax, below, as well as the middle and hind tibiæ, sparsely covered with yellowish rufescent hair.

*Hab.*—Batchian island; a single specimen in the Vienna Museum.

*CETEJUS AUSTRALIENSIS*, n. sp.

Total length 33, width of head 7, of prothorax 9.9, of shoulders 9.6, length of elytra 19.2 m.m. Whole body rather depressed.

Left jaw slightly longer than the right one. Upper lip deeply emarginate, the right half being slightly shorter and a little more rounded than the left one, as in *G. naviculator*. Antennæ with six lappets, the two first being very short, the third a little shorter than the three terminal ones, which are subequal and rather slender. Clypeus entirely rugose; the horn is elongated, with a triangular tubercle on each of its basal halves. The frontal ridges issue from the horn under a moderately obtuse angle, (as in *Lept. dentatus*), and terminate with distinct points, connected by a very fine carina, from which the margin of the clypeus descends almost vertically. Both marginal tubercles are pointed, similarly formed, but the left one is conspicuously larger than the right. Each frontal tubercle is connected by a short carina with its corresponding marginal one, and besides also with its corresponding small tubercle in the middle of the supra-ocular ridge, each of which is truncated in front.

Prothorax slightly broader posteriorly than anteriorly, with a fine but almost complete central groove; sides entirely punctated, lateral scar small and rounded; marginal furrow very narrow.

Scutellum smooth, with a central basal groove; waist laterally punctated. The four central furrows of the elytra on the upper side indistinctly, the remainder distinctly, punctated, those at the sides at least twice as broad as the ridges separating them and with distinct transverse bacilli. This structure very strongly reminds one of *Basilianus cancrus*, which is also the largest species of its genus.

Tongue tricarinate, laterally concave. Lower lip convex and smooth, with a small elongately semi-elliptical scutellum between it and the tongue; a small but distinct scar on each side of the lower lip, its branches rather larger, rounded at the ends and somewhat inwardly curved, entirely but not very densely punctated. Prosternal



the same species in the Vienna Museum collection from Amboina (marked *Doleschali*, M. O.) have merely a trace of the middle frontal carina, and the prothorax is comparatively smaller.

*Gonates Germarii* was received by Mr. W. S. Atkinson from Java. Kaup describes *Laches Comptonii* from Ceylon. I have not seen it.

#### 15. *ACERAIUS GRANDIS*, Burm.

This is a very common species in Sikkim, Assam, the Naga and Cachar hills. Indian specimens exactly agree in structure with the large Javanese type form, but their usual size is only 40 m.m., and I never saw one exceeding 45 m.m. In Javanese specimens generally only the ninth and tenth rib of each wing are punctated and hairy near the shoulder, while Indian specimens have, as a rule, the whole of the seventh and ninth rib punctated; it is very rarely that the pits entirely disappear on the seventh.

#### 16. *ACERAIUS EMARGINATUS*, Fabr.

An extremely variable species, both in general size, as well as in the shape of the two marginal processes of the clypeus; the left one being sometimes sharply pointed at the end, or scarcely bipartite, as in Percheron's *pilifer*. The seventh and ninth ribs of the elytra are as a rule entirely punctated, very rarely is the seventh smooth. The smaller forms, between 30 and 38 m.m., are, I think, mostly males, they have the furrows of the wings perceptibly punctated; the larger specimens, about and above 40 m.m., appear to be mostly females, the furrows of their elytra are almost devoid of punctations.

The species occurs in Sikkim, Assam, Cachar, but is much rarer than *A. grandis*. I also obtained it on Penang hill, and from Johore; in the Vienna collections are specimens from China, Luzon, and Manilla.

Redtenbacher's *Passalus Nicobaricus* from Sambelong (Great Nicobar) is also undoubtedly this species, and neither a *Macrolinus* nor a *Basilianus*.

The next genus, *Basilianus*, is the most numerous in species. I possess specimens of the four species described by Kaup, and three others which I must regard as new. This is as yet almost the only instance in which I have been obliged to transgress Kaup's limit of five species. I took considerable pains to ascertain whether these species could possibly belong to any of the other genera of *Eriocneminæ*, but they do not answer to the characteristic of any

process between the anterior coxæ grooved. Waist, below, smooth, with an elongated scar on either side. Metasternum smooth; on the sloping corners rugosely punctated. Sides of abdominal segments and the posterior part of the last segment mostly finely punctated. No hairs are seen on the elytra; the middle tibiæ are moderately hairy, the hind ones somewhat less so.

*Habitat*—Australia; a single specimen in Dr. C. Felder's collection.





other genus than *Basilianus*. They differ from *Aceraius* by the absence of hair at the sides of the elytra, and from the other genera of the *Aceraiæ* in the shape of the lower lip and the want of a scutellum between it and the tongue; the same character holds good in a comparison with *Mastachilus*, and the unequal lappets on each of the antennæ readily separate them from the other *Macrolinæ*. The seven species may, however, be divided into two sections, as follows:

a. With the marginal processes of the clypeus very asymmetrical,—*Nilgheriensis*, *inæqualis*, *Cantoris*, *Indicus*.

b. With the marginal processes of the clypeus very slightly or scarcely asymmetrical,—*cancrus*, *Andamanensis*, *Sikkimensis*.

17. *BASILIANUS NILGHERIENSIS*, Guér.

The usual size of Malabar specimens is only 28 m.m.; it does not appear to be a common species.

18. *BASILIANUS INÆQUALIS*, Burm.

Common at Malacca. Kaup gives it from Singapore and Penang. The largest specimen which I have examined is nearly 30 m.m., and the smallest 24·7 m.m., the length of the elytra being 13·7, width of head 5·5, of prothorax 6·9, the proportionate size of this last being often remarkably small.

19. *BASILIANUS CANTORIS*, Hope.

The usual size of Sikkim and Assam specimens is 33 to 35 m.m. Kaup gives it also from Malacca and Cambodja.

20. *BASILIANUS INDICUS*, n. sp.

Total length from 33 to 40 m.m., one specimen is 37·6, width of its head 9, of prothorax posteriorly 12, of shoulders 11·5, length of elytra 21·5 m.m.

Left jaw slightly straighter and longer than the right one. Upper lip widely and rather deeply emarginate in front. Antennæ, with the three terminal lappets longest and subequal, the second and third about half the length of the fourth, and the first is very short, sometimes scarcely traceable. Clypeus rather large, mostly smooth, or sparsely punctated, with the supra-ocular ridges anteriorly truncated with an inward slope, the inner edge of the slope being sometimes very indistinct, while the outer one is sharp, and projects at the corners, somewhat as in *Aceraius grandis*. The horn rises out of a transverse long tubercle, it is subpyramidal, the posterior slope being gradual, the anterior vertical; the frontal carinæ are very fine, forming together a wide semicircle, each terminating in a blunt tubercle, and from each proceeds a very fine carina to the respective marginal process of the clypeus; the left process is the longer, depressed, inwardly bent, obtuse at the end; the right one is thick, short, obtusely pointed.



The prothorax is moderately convex, as in *Cantoris*; it is conspicuously wider posteriorly than anteriorly, with a central groove which is almost as complete, as it is usually to be found in American forms and in these only; marginal furrow anteriorly somewhat widened, bent in and punctated; lateral scar small, rounded, generally with a few pits; the sides of the prothorax are either quite smooth (in the larger specimens), or punctated in front of the scar and at the anterior corner (in the smaller specimens). Whether this is a distinction of sex I cannot say.

Scutellum centrally very minutely strigated; waist laterally densely punctated. Shoulders slightly thickened, only anteriorly with few very short and thin hairs. Furrows of the elytra, above, slightly, laterally distinctly punctated; without hair.

Tongue tricarinate. Lower lip in the middle somewhat convex, mostly smooth or punctated, anteriorly sometimes slightly indented; its branches densely punctated, no scars exist on it. Waist, below, smooth, with elongated diverging, dull scars. Metasternum smooth, its posterior sloping corners rugosely punctated, its sides entirely hairy. Abdominal segments laterally with linear scars.

Prothorax posteriorly, below, covered with brown hair; middle tibiæ very densely, posterior ones less hairy.

*Hab.*—Nilgheries and Malabar. I received several specimens from Major Beddome, Rev. Baker, and Surgeon Major F. Day.

## 21. *BASILIANUS CANCRUS*, Perch.

The largest specimen in my collection is 45 m.m. It has as yet only been obtained in Nipál, Sikkim, Bútán, and Assám.

## 22. *BASILIANUS ANDAMANENSIS*, n. sp.

Total length 32 to 38 m.m.; one measures 35.6, width of its head 8, of prothorax 10, of shoulders 10.2, length of elytra 21 m.m.

Jaws almost equal. Upper lip straight in front or obliquely truncated, the left rounded corner being often a little more projecting. Lappets of the antennæ generally graduated, the first very short, the succeeding to the fifth gradually longer. Clypeus entirely punctated and covered with short hair; supra-ocular ridges low, distinctly truncated in front and with the carina round the concave space well developed. The horn consists of an elongated ridge, with a small tubercle on either side; it is slightly elevated at the anterior end and with an almost vertical slope. The frontal carinæ are rather short, terminating with elongated distinct points, connected by another carina, from which the margin of the clypeus is almost vertical. The marginal processes of the clypeus are far distant, situated above the edges of the upper lip; they are short, pointed, in some specimens apparently almost equal, in others the left one is distinctly larger. They exactly resemble those



of *cancerus*, and each also has on its lower side a small tubercle. From both the marginal processes and the frontal tubercles generally proceed a few irregular low ridges to the middle of each supra-ocular ridge.

Prothorax moderately convex, smooth, generally with a very faint indication of a central groove; lateral scar rounded and, like the entire lateral margins, very finely punctated; sometimes there are one or two dots at the anterior corner.

Scutellum smooth, convex, sometimes with a minute punctation along the lateral edges. Shoulders well prominent, and each with a group of short brown hair, considerably more developed than in *Cantoris*. Furrows of the elytra finely punctated; all the ridges smooth.

Tongue tricarinate. Lower lip large, mostly smooth, without any scars; its branches densely punctated. Prosternal carina sharp, long. Waist with elongated diverging scars, sometimes with a short, central, basal groove. Metasternum smooth, its hinder corners sparsely and very finely punctated; sides densely punctated and hairy. Abdominal segments smooth, with linear oblique scars. Middle and hind tibiae rather thinly hairy; lower sides of prothorax more distinctly so; last abdominal segment at the end provided with conspicuously elongated brown hair.

*Hab.*—Andamans near Port Blair; Camorta and Katchal islands of the Nicobar group; common. I found one specimen in the Vienna collection, together with *Mastuchilus politus*, labelled 'Madras,' 'Novara.' It was most likely obtained from some officer who had been at the Andamans, or from the Museum.

### 23. BASILIANUS SIKKIMENSIS, n. sp.

Total length 33, width of head 7.1, of prothorax or of shoulders 10, length of elytra 19 m.m.

This species resembles *B. Cantoris* in size and general character of form and convexity of the body. The jaws are subequal; the upper lip obliquely truncated, almost quite straight, with obtuse corners. The three first lappets of the antennæ much shorter than the three terminal ones, the two sets being among themselves almost equal. Clypeus entirely punctated and very similar to that of *B. Andamanensis*, but the horn is a little shorter, the frontal carinæ include a slightly smaller semilunar space, and the frontal processes of the clypeus are almost shorter, both pointed, nearly quite equal in size, and each is on the outer side accompanied by a short longitudinal carina, which, however, does not extend to the supra-ocular ridge.

Prothorax moderately convex, with a very faint trace of a median groove; lateral scar rather large, pitted all round, the dots or pits being almost continuous to the anterior corner and here again rather dense; along the lateral margins densely and very finely punctated.



Scutellum smooth. Shoulders moderately developed, on the anterior slope finely punctated and shortly hairy. Furrows of the elytra above distinctly punctated, laterally broader and with transverse bacilli, the seventh and eighth furrow are broadest.

Tongue rather narrow, punctated, thinly tricarinate, laterally concave. Lower lip convex, with sparse punctation, its branches densely punctated. Waist, below, with diverging elongated, dull scars. Metasternum smooth, its hinder corners coarsely punctated, and the narrow sloping sides along the elytræ very finely punctated and hairy.

Abdominal segments with elongated, finely punctated lateral scars, broadest on the first few segments, linear on the penultimate and obsolete on the last. Lower side of prothorax the middle and hind tibiæ with short and rather thinly distributed hairs.

*Hab.*—Sikkim. I obtained a single specimen at about 1500 feet, some two miles east of Pankabari.

The species is intermediate between *cancrus* and *Andamanensis*; with the latter it agrees in the shape and structure of the head, with the former in the transverse costulation of the lateral furrows of the elytra, but in *cancrus* this costulation is still stronger.

NOTE ON SOME ANDAMANESE AND NICOBARESE REPTILES, WITH THE DESCRIPTION OF THREE NEW SPECIES OF LIZARDS,—by DR. F. STOLICZKA.

[Received and read 7th May, 1873.]

I have given a list of the Reptiles and Amphibians, known from these islands, in a former paper,—Journal A. S. B., Vol. xxxix, pt. II, 1870, pp. 136-138 etc.; having, however, lately had an opportunity of visiting all the Nicobar islands (excluding Little Nicobar and Pulo Milu), and the Andamans, including the Cocos and Preparis, I am in a position to add a little information about some of the species. Our visit\* was chiefly from an ornithological point of view, and as it fell already in the hot season (March), the time was very unfavorable for collecting reptiles, at least on the northern group of islands, which at this season are much drier than the southern Nicobars.

We found the following species generally distributed over nearly all the islands which we visited:—*Tropidonotus quincunctiatus*, *Lycodon aulicus*, *Dendrophis pictus*,† *Cerberus rhynchops* and *Trimeresurus Cantoris*. Spe-

\* In company with Mr. A. O. Hume, C. B., Messrs. Ball and Wood-Mason.

† In the July number of the Berlin Monatsbericht (for 1872, p. 583); just received, I observe that Dr. Peters describes a *Dendrophis terrificus*, with 13 rows of scales; it is very closely allied to *Dendrophis caudolineatus*, (compare ante p. 123), but differs in coloration.





cimens of *D. pictus* from the Nicobars generally are as soberly coloured as the continental form, while those from the Andamans are very much brighter, but the typical form again occurs on the Cocos.\* The rare *Trimeresurus porphyraceus* was found to be common on the Preparis island; it grows to nearly four feet. Of lizards the most common were *Euprepes carinatus*, *Hinulia maculata*, *Cyrtodactylus rubidus*, *Tiaris suberistata* and *Hydrosaurus salvator*. Of Batrachians *Bufo melanostictus* is very common.

*Euprepes macrotis*, described by Steindachner, was observed in Galtha Bay on Great Nicobar (Sambelong).

The large Andaman form of *Euprepes carinatus*† is not specifically distinct from the common type. I met with similarly large specimens (up to 20 inches) on the Coco islands. Most of those which I obtained there have thirty rows of scales round the body, and each scale has seven keels, the three median ones being strong and distant from each other, the two laterals on either side short, thin and sometimes scarcely traceable. Some specimens have the anterior frontal in contact with the rostral as well as with the vertical, a short process of the anterior frontal separating the two posterior. The specimens were apparently in breeding dress. The whole sides of the head, neck and belly were vermilion or bright cinnabar red, the anterior extremities and the back were also strongly tinged with red. The entire sides of the body and of the tail and the extremities had numerous large, irregular white and black spots intermixed, giving the lizard quite a different appearance from the ordinary type. The white spots were most numerous along the edges of the back, but there is no marked white band present.

#### PHELSUMA ANDAMANENSE, Blyth.

Comp. Stoliczka in J. A. S. B., 1870, Vol. xxxix, pt. II, p. 162, and Anderson in P. Z. S. Lond. for 1871, p. 160.

The following is a complete description of this remarkable lizard.

Body rather stout, moderately depressed, tail tapering, narrow at the base, with transverse contractions at distances. Snout almost conically elongated, rostral broader than high, just reaching the upper surface of the head; nostrils lateral, in the hinder edge of an enlarged, somewhat swollen shield, followed by a slightly smaller one; on the upper side the two nasals are separated by two (rarely by three) shields. Head, body and limbs, above and at the sides, covered with equal granular scales, or rather shields,

\* It is perhaps due to their more isolated situation that the Cocos and neighbouring islands, (Preparis, Narkondam, Barren island), have several Nicobar forms which on the Andamans are apparently wanting. We found *Carpophaga bicolor* common, *Calanus Nicobaricus* is said to have occurred on the Cocos, and *Megapodius* is found on Table island. Among shells I got numerous *Helicinae*, exactly like *H. Dunkeri*, *Bulinus Nicobaricus*, var., *Cyclophorus*, like *C. nicobaricus*, &c.

† J. A. S. B., vol. xxxix, Pt. II., p. 170.



becoming on the tail more depressed, scale-like, and intermixed with a few larger ones. Eye of moderate size, with an almost round pupil; it is surrounded with small granules. Ear-opening ovately rounded, equal to about one third of the longer diameter of the eye. Eight to ten low upper labials. Lower rostral large, somewhat produced and contracted behind. Nine to ten lower labials, the first two are largest, not in contact, the succeeding gradually decrease in size. None of the chinshields are particularly enlarged, and they vary in arrangement in different specimens. The scales of the belly are roundly hexagonal, across the middle in twenty-one to twenty-three longitudinal, alternating series.

The adult male has thirty-one femoral pores, in an uninterrupted series, angularly ascending in the centre. The female has a similar row of enlarged but not perforated shields. Præanal shields not enlarged. A small slit exists on either side in the postanal margin. On the tail the subcaudals become a short distance from the anus enlarged, single, only occasionally broken up into smaller shields. The inner toes on both the fore- and hind-limbs are very short, almost rudimentary; the fourth toe is longest, and all have their front edges rounded.

The general colour in males is grass- or bluish-green, subject to very great changes during the life of the lizard; head and neck with yellowish orange spots and stripes, among which one from behind the eye, one or two across the occiput, and one along the middle of the neck are most conspicuous. The anterior part of the body is on the upper side marked with small, oval, orange spots, on the posterior part these spots are somewhat larger, encircled with yellow, and sometimes partly confluent. All these orange spots often assume during life a strong reddish tint. Tail generally uniform bluish green. The lower side is uniform yellow or yellowish white.

The females are more soberly coloured, particularly when not full grown, in which case the orange spots are much less distinct, and sometimes almost obsolete.

The lower sides of the toes, especially towards their terminations, are silvery grey.

The usual size of full grown males is five inches, head and body being two; specimens of six inches are great rarities. The females are generally somewhat smaller than the males.

The species is not uncommon about Port Blair. I found a few on old trunks of trees (between epiphytes) on Mt. Harriet. They generally hide themselves under the bark of trees, but also often feed on the ground. Mr. Wood-Mason about a year ago brought a large number of specimens from the vicinity of Port Blair. I have not seen specimens from any of the other islands.



## GYMNODACTYLUS WICKSII, n. sp.

A small species, resembling in general character some of those described by Jerdon and Beddome from South India. The body is moderately slender and depressed, covered with very small, keeled tubercles which have the appearance of pointed granules; on the back there are numerous larger, but similarly formed, tubercles interspersed, and on the side of the belly these larger tubercles become distinctly spinulose; tail verticillate, with similar spinules, exactly as in *Hemidactylus frenatus*. On the snout the sharp granules are, as usually, somewhat larger than on the top of the head, but none are enlarged above the labials. The rostral reaches to the upper side of the snout, and is followed by two small shields, separated by a still smaller pentagonal azygos, the upper angle of which fits into a posterior emargination of the rostral. The nostril is lateral and directed somewhat backwards, it lies immediately behind the rostral, and is followed by two slightly enlarged and diverging shields, the anterior angles of which nearly touch the rostral, thus almost entirely isolating the nasal opening from the first labial and the shield behind the rostral. No particularly enlarged scales round the eye. Seven upper and lower labials, the first are in each case the longest, the succeeding gradually decrease in size, the last are very small; all are very low. Ear opening forms an oval, oblique slit, its distance from the eye is slightly less than that from the eye to the end of snout. Lower rostral large, obtusely pointed behind, followed on each side by a slightly enlarged shield, separated by smaller ones; there are no particularly enlarged chin-shields. The scales on the throat and anterior breast are finely keeled; those on the belly hexagonal and across the middle in about nineteen longitudinal series. Præ- or post-anals not enlarged. Sub-caudals along the middle line very little larger than the other shields covering the lower side. Reproduced portions of the tail are uniformly scaly, without enlarged tubercles.

The male has four præ-anal pores, situated between the femora in a shallow transverse depression, and quite separate from these are four or five femoral pores placed at the hinder lower edge of the femur, somewhat nearer to the hip than to the knee. Toes long and slender; basal portion with three or four transverse, squarish plates, the last the largest; terminal phalanges very much narrower.

*Colour.* Above, powdered brownish grey and white, a series of whitish, almost continuous spots along the middle of the back, extending on to the tail. There are six or seven of these spots from the nape to the base of the tail, and each of them is edged anteriorly and laterally with black, sometimes the lateral black edges develop into elongated spots and are most distinct. On the tail the white spots are less distinctly developed, but the transverse black margins well marked. The sides of the body, of the tail



and the upper side of the limbs is thinly checkered with black; the enlarged spinules and tubercles are all pure white. There is a dark streak between the snout and the eye, posteriorly there are three dark lines, one going to the occiput, the second to the ear, the third to the angle of the mouth; and generally there are one or two more below the eye, giving the side of the head quite an ornamental appearance. Labials spotted with white. Chin and throat powdered with brownish dusky, remainder of lower side uniform pale, more or less distinctly tinged with fleshy; in males more markedly so than in females. In the very young lizard (about one inch long) the lateral black spots along the back, and the median black line behind the eye are most distinctly marked, in other respects it does not differ from the adult.

*Hab.*—Preparis Island. I obtained five specimens, two apparently adult males and two females, and one young; all were found on the ground between old decaying vegetable matter. One of the largest specimens with perfect tail, measures: head and body 1.13, tail 1.37 = 2.5 inches. The length of the hind limb equals the distance from the shoulder to the groin.

I have great pleasure in connecting with this very interesting new species the name of the able Commander of the "Scotia," Capt. G. W. Wicks, who piloted us most skilfully through the labyrinth of small and large islands.

#### MOCOA MACROTYPANUM, n. sp.

Body moderately slender, head flattened above, muzzle rather attenuated and prolonged. Anterior frontal in contact with the rostral, separating the two elongated nasals, and posteriorly just touching the vertical, which is rather shortly, obtusely angular in front, and gradually attenuated behind. Four enlarged supraciliaries, preceded and followed by a smaller shield. The two anterior occipitals (? accidentally) united, the median one roundly angular in front, attenuated and contracted behind, the two laterals narrow, in contact with each other behind the median shield. Four pairs of scales behind the occipitals enlarged, occupying the whole width of the neck. Seven upper labials, the fifth under the orbit, six narrow lower labials. First chin-shield single, the second is a pair in contact, third separated by a small shield, fourth pair somewhat smaller. Lower eyelid with a transparent disk. Ear opening very large, rounded, with a perfectly smooth edge all round, the tympanum being distinctly visible. Body in the middle surrounded by twenty-two longitudinal series of smooth scales, six series being on the back; they are slightly larger than those at the sides. About fifty-two scales along the edge of the lower side, counted between the fore and hind limbs. A pair of moderately enlarged præ-anal shields. Median row of sub-caudals slightly enlarged. Limbs proportionately developed, with the toes very slender.



Head above brown, paler on the muzzle; three longitudinal white bands along the body,—one along the middle, originating between the eyes, and two along the sides, beginning on the supraciliary edges;—they are separated, above, by two somewhat broader brown bands, each being lighter coloured along the centre, and bounded at the sides by a similar brown band which is, however, darkest along the centre. The median dorsal white band becomes obsolete at the root of the tail, the two lateral ones continue on it, and unite when approaching the tip. Labials and sides of head brownish, spotted with white. Lower portion of the sides and the entire lower surface livid carneous, most distinctly so, and tinged with bright orange, on the lower belly and on the tail, which is also on the upper side carneous, with a few white dots at the side of the base, and irregularly marked with pale brown on the lower surface. Limbs, above, with very close longitudinal brown lines, toes all distinctly powdered with pure white.

Total length four inches, the head and body being 1·8, the length of the fore limb is equal to the distance between the shoulder and the angle of the mouth, or one-third of the distance between the axil and the groin; the length of the hind-limb is one-half of the same distance.

*Hab.*—South Andaman. The single specimen was obtained on a sandy beach in Macpherson's Straits.

#### TIARIS HUMEL, n. sp.

A larger species than *T. subcristata*, and like this one with the crest interrupted above the shoulders, but the crest itself is very much more developed. The nuchal part is considerably higher than the dorsal one, on its convex edge it is composed of 13-15 lobes; the dorsal portion continues on to the tail, disappearing after about one-fourth of its length. None of the scales are at the lateral bases of the crest particularly enlarged. All scales on the body are distinctly and sharply keeled.

Head shelving and concave above; snout with a few enlarged scales along the centre; supraciliary edge sharp, its posterior end is separated by a short groove from a small tubercle following it. Two groups of enlarged conical scales on the upper side of the occiput; several (3-4) enlarged scales on the side of the head above the tympanum which is hardened near the centre, and about as large as the eye. Below the tympanum no scales are enlarged. Eight or nine upper labials and seven or eight lower labials; the scales adjoining the former are enlarged, and there is also a conspicuous row of slightly enlarged scales below the eye. A row of enlarged scales is separated from the lower labials by one of small scales. Scales on the side of the neck and body very small, arranged in somewhat irregular transverse series, with scattered larger ones intermixed; on the tail they gradually increase in size, but within a short distance of its base still have some



larger ones intermixed. On the limbs the scales are much larger, two or three on the upper side of the femora particularly so. Gular pouch and fold covered with small scales, which become larger on the lower belly than on its sides. The two rows of sub-caudals are slightly larger and more pointed than the shields on the upper side of the tail.

General coloration greenish olive, on the top of the head brownish; sides of the entire body more or less distinctly and rather densely reticulated and spotted with black and yellow; sides of head and neck and the gular sac tinged with purplish blue, labials spotted with blue. Chin mostly yellow; belly whitish, without spots. Tail brownish above, paler below, irregularly and indistinctly spotted with dusky.

Total length of one specimen 16 inches, of which head and body are 4.4 and the tail 11.6 inch. The fore limb when laid backwards extends beyond the groin, or almost to the præanal edge, and the hind limb when laid forwards fully reaches the anterior edge of the eye.

The above noticed characters readily separate the Nicobar species from *T. dilophus*, or *T. tuberculatus*, lately (P. Z. S. 1872, p. 533, pl. xxxviii) described by Dr. Günther from the East Indian Archipelago.

I obtained only two specimens (male and female) on the Nicobar island Tillingchang, but the species did not seem to be rare.

#### DIBAMUS NICOBARICUS, (Fitz.).

*Rhinophidion nicobaricum*, Fitz., Steindachner, Novara Rept. p. 52 and *Typhloscinus nicobaricus*, ibidem, p. 94.

I have two specimens for examination, one a male\* and the other a female (known from dissection).

The male is six inches of which the tail is 0.9 inch; there are 24 longitudinal rows of scales round the body, and 48 transverse rows along the tail. The two extremities are on either side somewhat in front of the anus, towards which they converge; they are depressed, each lying in an oblique cavity, the intermediate space of the sacral region being flat, triangular and pointed above the anus. Each extremity is fully as long as the whole head,† it is covered on the upper side by three longitudinal rows of scales, narrowing towards the end which is occupied by a large, flat, nail-like scale.

The body of the female is somewhat stouter; it measures 5.5 inches, of which the tail is only 0.5 inch. The body is again surrounded by 24 longitudinal and the tail by 34 transverse rows of scales. On each side in front of the anus is an enlarged scale, separated by three small scales from the anal edge, and just in the place where the extremity in the male originates;

\* This is in the Indian Museum and I am indebted to Dr. Anderson for the opportunity of examining it.

† In *D. Novæ Guineæ* the extremity is only as long as the head is broad.



this large scale covers a small opening<sup>d</sup>, in which internally a rather strong muscle terminates; the muscle is most probably emissible and retractile at the will of the animal.

All other characters are common to both sexes. The upper labial is separated from the rostral by a distinct groove. The shields are dark brown, almost blackish, with paler edges; paler below. The shields on the head are yellowish and there are occasionally yellowish spots on the chin and throat, or on the lower side of the tail.

As compared with *Typhloscincus Martensii*, Peters, the snout of the Nicobar species is narrower, the head posteriorly broader, the eyes, although covered by skin, distinctly traceable, all points to which Steindachner drew attention when comparing the two, but the shields of the head, the number of scales round the body and on the tail are in both species quite the same. There is in *T. Martensii* also an enlarged scale above the anal edge, but it is nearer to it than in the Nicobar species. Still, if it were not for Peters' distinct statement, that out of three specimens of *T. Martensii* two are males, and one a female, both without any trace of extremities, I should have considered the specific distinction of the *D. Nicobaricus* from *T. Martensii* somewhat doubtful. The coincidence is certainly remarkable.

*Dibamus* was characterized by Dumeril and Bibron (Erpet. gen. v. p. 833) from two New-Guinean specimens, sent to them by Prof. Schlegel. Both specimens were apparently males, but Schlegel\* says that these only possess a pair of posterior extremities, the females having none. And this is strictly in accordance with the observation made on the two Nicobar specimens.

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DESCRIPTIONS OF TWO NEW SPECIES OF INDIAN LANDSHELLS,  
by DR. F. STOLICZKA.

[Received 7th May, 1873.]

The following descriptions have been drawn up with the view of supplementing the figures of them which are to be given by Mr. Theobald in the 'Conchologia Indica.' The first species is from the Shan-states, and was collected, several years ago, by Mr. Fedden; and the second was given to me by Mr. Foote who obtained it in the cotton soil district near Bolgaom, when on his geological tour.

\* Comp. Berlin Akad. Monatsberichte for 1864, p. 271.



## PLECTOPYLIS SHANENSIS, n. sp.

*Pl. testa planorbulari, pallide fusca, apice minutissime exserto, pallido; anfractibus  $6\frac{1}{2}$ , angustis, sutura indistincte marginata junctis, primis  $2\frac{1}{2}$  ad tribus minute rugulosis, cæteris transversim oblique striatis atque concentricè obsolete striolatis, ultimo ad peripheriam subrotundato, infrâ paululum angustiore, ad aperturam modice deflexo; umbilico spatioso, anfractus omnes suturâ distincte marginatâ separatos exhibente; apertura angulum circiter  $55^\circ$  attinentem cum axi formante, peristomate undique expansiusculo atque incrassato, margaritaceo lutescente, circumdata, ad utramque terminationem labii subangulati profunde incisa; labio plicis tribus distinctis instructo, plica mediana crassissima, ea atque infera multo tenuiore usque ad peristoma extensis, tertia interposita a margine remote evanescente, sed usque ad laminam internam verticalem, circiter tertiam partem unius circuitus a margine aperturali distantem, extensa; ultimo anfractu intus supra laminam verticalem antice plicis sex crassiusculis, postice plicis decem brevioribus atque tenuioribus instructo.*

*Diam. maj. 21.5, min. 17, alt. 6.5; diam. aut alt. aperturæ 7.5 m.m.*

*Dimensiones speciminis secundi minoris sunt: 18.5, 15, 5.8, 6.6 m.m.*

*Hab.*—Provinciam Burmanam 'Shan-states' dictam.

This *Plectopylis* is readily distinguished from its allies by the presence of three labial plicæ, the strongest being in the middle and extending, like the lower thin one, to the edge of the lip, while the intermediate one disappears before it reaches the aperture, but it is the only one which extends to the internal almost vertical lamina. This last is superseded anteriorly by six stronger and posteriorly by ten thinner and shorter folds, but there is no corresponding lamina present on the inner side of the last whorl.

In external shape and character of volution the species is almost identical with *P. repercuta*, except that in this latter all the whorls are transversely striated on the upper side, and the last at the aperture a little more deflected, the umbilicus also appears to be a little wider, and not only the plicæ at the mouth but also the internal laminæ are totally different in *repercuta*; in this one there are two internal laminæ on the inner lip one behind the other, and one on the outer lip projecting in the space bounded by the two others.

## TRACHIA FOOTI, n. sp.

*Trach. testa albida, orbiculata, supra deplanata, infra inflata, versus medium angustata, perspective modice umbilicata, undique dense granulifera; anfractibus 4 ad 4.5, gradatim accrescentibus, primis duobus aut tribus convexiusculis, transversim striatis, cæteris magis deplanatis, transversim costulis inæqualibus et obliquis ornatis, ultimo ad peripheriam valde carinato, costulis in carina evanescentibus, ad aperturam valde descendente atque fere*



*omnino deflexo; basi circa umbilicum rotundate subangulata, similariter costulata, costulis usque ad peripheriam extensis; apertura fere horizontaliter deflexa, transversim rotundate elliptica, margine dilatato fere undique libero, ad angulum umbilici angustissime adnato, circumdata. Diam. maj. 13·3, d. min. 11·2, altitudo totius testæ 6; altitudo apert. cum peristomate 5·5, ejusdem latitudo 6·8 m.m.\**

*Hab.*—Belgaom, India occidentali.

The present species has to be placed in close proximity to *T. crassicostata*, and is as closely allied to it as this is to *T. fallaciosa*. It differs very markedly from *crassicostata* by its more distinctly orbicular and depressedly planorboid shape, by a well marked, smoother and thinner, peripheral keel on the last whorl, by a more inflated and towards the middle more contracted base, it being angular round the umbilicus, and by a considerably more deflected aperture.

In a former paper\* I expressed a doubt about *H. fallaciosa*, *ruginosa*, and *nilghirica* belonging to the genus *Trachia*, as originally proposed by Albers. I observe, however, in well preserved specimens, that all of them possess the peculiar granular structure which is so characteristic of *Trachia*. *T. crassicostata* and *Footei* must now be added to the list of these closely allied Western Indian species.

ON RHOPALORHYNCHUS KRÖYERI, A NEW GENUS AND SPECIES OF PYCNOGONIDA,—by JAMES WOOD-MASON, of Queen's College, Oxford.

[Received and read May 7th, 1873.]

(With plate XIII.)

Much difference of opinion has prevailed with regard to the systematic position of the *Pycnogonida*, as to whether they should be classed with the Crustacea or with the Arachnida. By one set of naturalists, including Johnston, Milne-Edwards, Quatrefages, Kröyer, and Dana, they have been placed with the Crustacea; by another—including Latreille, Erichson, Gerstaecker and Huxley who separates them, as well as the Tardigrada and Pentastomida, from the typical Arachnida (Spiders, Mites and Ticks) as an aberrant order,—with the Arachnida. Dr. Anton Dohrn† who has recently studied the embryology of these animals finds that they are in no way related to the Arachnida, that they resemble the Crustacea in having a naupliiform first developmental stage, but that from this point the course of development ceases to exhibit anything in common with that of the Crustacea; under these circumstances I have thought it better to call the *cheli-*

\* Journ. A. S. B., Vol. XL, Part II, p. 224.

† Jenaische Zeitschrift, 1869.



*ceræ, palps, and accessory legs* (= mandibles, and 1st and 2nd pairs of maxillæ of Kröyer) of those who range the *Pycnogonida* with the *Arachnida*, the first, second and third pairs of cephalic appendages respectively, thus avoiding the use of terms implying affinities and homologies that may not in reality exist.

RHOPALORHYNCHUS,\* gen. nov. Wood-Mason.

Corpus lineare, gracillimum, annulis thoracis perdistinctis, cylindricis, utrimque dilatatis, processibusque lateralibus magnis, obconicis. *Rostrum* uniarticulatum, elongatissimum (corporis longitudinem pæne æquans), clavatum, ore triradiato. *Annulus oculiger* in collum vix coarctatus. *Appendices cephalicæ primi paris* absunt. *App. ceph. secundi paris* tenuissimæ, rostro longiores, novemarticulatæ, articulis secundo tertioque elongatis; *app. ceph. tertii paris* paulo longiores, ex decem confectæ articulis,—quorum tertius quintusque sunt elongatissimi, terminalesque quatuor prehensiles ac margine interiori serrati ciliatique—in utroque adsunt sexu; appendices utriusque paris, secundi ad tertium, tertii ad quartum articulum, sunt geniculatæ. *Tuberculus oculiger* in postica annuli parte est situs. *Pedes* gracillimi, inermes, equales, corpore (rostro incluso) duplo longiores, unguibus auxiliaribus armati sunt nullis. *Abdomen* uniarticulatum, obtuse-conicam, perbreve, vix distinguendum.

RHOPALORHYNCHUS KRÖYERI, n. sp.

Body linear, smooth. The rostrum is almost as long as the rest of the body, moveably articulated to the middle of the anterior end of the oculigerous somite, slender and filiform nearly to its middle whence it expands and finally narrows to its obtuse extremity; when examined in profile, the convex upper contour of the expanded portion is seen to carry two minute forwardly-directed spines, the one behind the other in the middle line. The mouth is situated at the extremity of the rostrum and has the form of a triradiate slit, the three slits being so disposed that a circle described from the point in which they meet so as to pass through their free extremities would be by them divided into three equal sectors. The ocular tubercle is erect, occupies the posterior half of the segment on which it is placed, and has the form of a short cylinder surmounted by a minute cone, the eyes being situated partly on the cylinder and partly on the cone at points corresponding, as usual, to the extremities of the arms of a St. Andrew's cross. A very distinct crescentic suture, bounding the base of the ocular tubercle posteriorly and curving forwards and outwards so that, if produced far enough, it would pass

\* ῥόπαλον, clava; ῥύγχος, rostrum.



out just in front of the first pair of legs, divides the oculigerous from the first thoracic somite.

The *cephalic appendages of the first pair* are absent. Those of the *second pair* are about  $1\frac{1}{2}$  times as long as the rostrum with which they lie in the same horizontal line, being articulated one on each side of it to the anterior end of the oculigerous somite, are filiform, excessively slender, and composed of nine joints. The first joint is subglobular, being nearly as broad as long, much broader than any of the succeeding joints; the second greatly elongated and slightly expanded at the apex; the third is very short and slightly curved; the fourth is greatly elongated, but not so much so as the second; the fifth is shorter than either of the four equal terminal joints which, together with the fifth and the distal half of the fourth, are fringed with short and very delicate cilia. Those of the *third pair* are also extremely slender, are articulated, a little posteriorly and internally to the second pair, to minute processes springing from the ventral arc of the oculigerous somite and meeting in the middle line. They are composed of ten joints, of which the first is minute, the two next equal and cylindrical, the third greatly elongated and just perceptibly expanded at the apical end; the fourth short, scarcely longer than the second of the two basal joints, and curved; the fifth is likewise greatly elongated, but more expanded at the apex and longer than the third; the four terminal joints are short, slightly decrease in length from the first to the last which comes suddenly to a subacute incurved point forming a sort of claw, are curved, fringed on their inner and concave margins with cilia and minute spinules, and capable of being coiled tightly together so as to form a prehensile organ.

Both pairs of appendages are elbowed at a short joint, intercalated between two long ones, *viz.*, the second pair between the 2nd and 4th, the third between the 3rd and 5th joints.

In many other species the terminal joints of the third pair of cephalic appendages (*pedes accessorii*) will probably be found to be similarly modified as a prehensile organ; an examination of O. F. Müller's faithful figures of *Nymphon grossipes*, Fabr. in the *Zoologica Danica*\* would, in fact, alone suffice to show the existence of such a modification in that species, even if Kröyer† had not described it in his diagnoses of the genera *Nymphon* and *Zetes*, without, however, offering any interpretation of the structure.

The *oculigerous somite* has its anterior margin straight, and is but faintly constricted in front of the eye-tubercle.

The *first thoracic somite*, if its distinctness from the oculigerous somite be admitted, is very short. Of the remaining somites, the second and third are subequal, the former being if anything the longer; are as perfectly cylindrical,

\* Op. cit., pl. cxix, figs. 5 et 8.

† Naturhist. Tidssk., 1844, pp. 108 et 116.







tangle of delicate, filamentous algæ so closely resembling the animal in point of colour and form, that the latter was with difficulty distinguishable.

In conclusion, I dedicate the first species of *Pycnogonida* hitherto discovered in these seas to the memory of the illustrious Danish naturalist whose name is so indissolubly connected with the history both of the *Pycnogonida* and of the lower Crustacea.

### Explanation of Plate XIII.

- Fig. 1. *Rhopalorhynchus Kröyeri*, nat. size.  
 Fig. 2. The same greatly enlarged.  
 Fig. 3. A cephalic appendage of the second pair, greatly enlarged.  
 Fig. 4. " " " " third " " "  
 Fig. 5. Rostrum seen from the side ..... " "  
           *a* = mouth.

ALGÆ\* COLLECTED BY MR. S. KURZ IN ARRACAN AND BRITISH BURMA,  
 DETERMINED AND SYSTEMATICALLY ARRANGED by DR. G. ZELLER,  
*High-Councillor of Finance in Stuttgart.*

(Communicated by Mr. Kurz.)

[Received 3rd May; read 4th June, 1873.]

### DIATOMACEÆ.†

- \*1. *PODOSIRA KURZII*, Z., n. sp.

Stipiti brevi cylindrico adnata; cellulis sphaericis, v. oblongis et diametro paulo longioribus; 1/175 ad 1/150 lin. crassis; 2 et pluribus isthmo brevi concatenatis, lævibus, valvulis ad commissuræ margines nodulis binis minutis instructis. Arracan, Akyab, in rupibus marinis submersis (3280, 3283.)

### CHROOCOCCACEÆ.

- \*2. *CHROOCOCCUS MINOR*, Ng. (*Protococcus minor*, Kg.).

Pegu, Elephant-point, in rhizophoretis ad corticem *Sonneratiæ apetalæ*. (3277).

\* The arrangement is according to Rabenhorst's *Flora Europea Algarum*, that of the sea weeds according to Kützinger's *Species Algarum*. The numbers within brackets refer to Mr. Kurz's collections. Those species marked by an asterisk are new additions to Burmese phycology (see a paper on Burmese Algæ by the late Dr. G. von Martens, Journ. A. S. B., Vol. XL., 1872, p. 461 sq.)

† The diatoms from Burmah (about 60 or more species) are not yet distributed; Dr. L. Rabenhorst of Dresden has, however, been kind enough to undertake the determination of them. (S. Kurz.)



## \*3. CHROOCOCCUS INDICUS, Z., n. sp.

Strato gelatinoso, tenui, pallide fusco; cellulis singulis solitariis, oblongis v. globosis,  $1/700$ — $1/300$  lin. crassis, virescentibus; tegumento hyalino, vix conspicuo, cytiodermate achromatico, cytoplasmate granuloso. In stagno silvatico ditionis Prome (3151).

## \*4. CHROOCOCCUS GRANULOSUS, Z., n. sp.

Strato gelatinoso, granuloso, aurantiaco; cellulis 4-12 et pluribus in familias circiter  $1/100$  lin. crassas associatis,  $1/500$ — $1/300$  lin. crassis, v. singulis ad  $1/160$  lin. crassis, globosis v. angulosis; tegumento tenerrimo, hyalino; cytiodermate hyalino, in cellulis junioribus vix conspicuo, in adultioribus crassiusculo; cytoplasmate aureo-fusco, rarius viridi. Pegu, in valli alluviali fluminis Irrawaddi versus Thabyægon, in rivulo exsiccato (3223).

## \*5. APHANOCAPSA ALBIDA, Z., n. sp.

Thallo tenui, membranaceo, amorpho, sordide albido; cellulis globosis,  $1/700$ — $1/600$  lin. crassis, nunc solitariis, nunc seriatis aut acervatis; tegumentis diffluentibus; cytoplasmate homoganeo, pallide aerugineo. Arracan, Akyab, in stagnis salsis putrescentibus fluitans (3284).

## \*6. SYNECHOCOCCUS FUSCUS, Z., n. sp.

Cellulis singulis, interdum duabus v. tribus longitudinaliter seriatis ellipticis, utraque fine rotundatis,  $1/100$  lin. longis,  $1/250$  lin. crassis; cytoplasmate fusco v. lutescente, homoganeo. Pegu, in montibus Yomah dictis secus rivulum Thit-Kouk (Pazwoondoung) in limo arenoso (3258).

## LEPTOTHRICHEÆ.

## \*7. LEPTOTHRIX OCHRACEA, Kg.

Pegu, in variis locis præsertim in montibus Yoma frequentissime e fissuris rupium humidarum protrudens et massas 1—1½ poll. crassas ochraceas formans. In collectione hæcce prostant stationes: Kadeng-choung ad Natmadhee (3232/a); Thayet-choung inter Kya-Eng (Eng = laculus) et Phounggyee, (3277); Wha-choung (choung = rivulus, fluvius, etc.) in stagno silvatico (3237/a); Mui-how in montibus (Yomae meridionalis) in fonte (3240).

\*8. HYPHEOTHRIX ÆRUGINEA, Rabenh. (*Leptothrix*, Kg.).

Pegu, Phounggyee, ad ripas laculi in limo (3186/a) var. *subtorulosa*, Z. articulis ad genicula interdum parum contractis. Pegu, Kenbatee-choung in fonte ad vicum (3131).

\*9. HYPHEOTHRIX CALCICOLA, Ag. b. *muralis* (*Leptothrix muralis*, Kg.)

Pegu, Henzañah, ad muros ædis cujusdam vetustæ lateritiæ. (3167).



- \*10. *HYPHEOTHRIX SUBTILISSIMA*, Rabenh. (*Leptothrix*, Kg.).

Pegu, in muris humidis muscosis cisternæ in vico Tharawa, in vicinitate oppidi Henzadah (3214/a, 3223/a, 3223/b).

- \*11. *HYPHEOTHRIX VIRIDULA*, Z., n. sp.

Strato tenui, membranaceo, obscure ærugineo-viridi; filis parum curvatis, dense intricatis, ad 750 lin. crassis, apicem versus attenuatis, ærugineis, obsolete articulatis, interdum torulosis; articulis diametro parum v. ad duplum longioribus; vaginis delicatissimis, arctis. Pegu, in palude prope Wanet, in limo et in plantis aquaticis. (3238).

### OSCILLARIÆ.

- \*12. *OSCILLARIA ANTILLARUM*, Kg.

Arracan, Akyab, in stagnis subsalsis. (3216).

- \*13. *OSCILLARIA ANTLIARIA*, Juerg. a *physodes*. Ibidem (3216).

- \*14. *OSCILLARIA BREVIS*, Kg.

Pegu, Kadeng-choung ad Natmadhee. (3134).

- \*15. *OSCILLARIA CHALYBEA* Mert., var. *Indica*, Z.

Strato obscure chalybeo, filis tantummodo 1/400—1/375 lin. crassis. Pegu, in locis humidis limosis viæ inter Kyauzoo et Wachoung (3185).

- \*16. *OSCILLARIA GRATELOUPII*, Bory.

Pegu, Elephant-point, in aquis dulcibus (3275).

- \*17. *OSCILLARIA SANCTA*, Kg.

Pegu, Tharawa, non procul ab Henzada, in muris humidis cisternæ (3214/a, 3223).

- \*18. *OSCILLARIA VIOLACEA*, Wallr. (*O. fenestralis*, Kg.)

Rangoon in limo aquæ dulcis. (3208).

- \*19. *OSCILLARIA VIRIDULA*, Z., n. sp.

Strato membranaceo, viridi-ærugineo, longe radiante; filis læte ærugineis, rectis, 1/500—1/450 lin. crassis, apice ad dimidium attenuatis et leviter curvatis, subtilissime granulatis; articulis obsoletis, diametro duplo brevioribus. (*O. Neapolitanæ* proxima). Rangoon, in limo aquæ dulcis (3206).

- \*20. *PHORMIDIUM ARENARIUM*, Rabenh. (*Ph. thinoderma*, Kg.).

Arracan, Akyab in limo aquæ subsalsæ (3220, 3286/a).

- \*21. *PHORMIDIUM INUNDATUM*, Kg.

Pegu, Tharawa, prope Henzadah, in muris cisternæ (3223/b).



\*22. *CHTHONOBLASTUS LYNGBYEI*, Kg.

Arracan, Akyab, in rupibus marinis inundatis (3285).

\*23. *CHTHONOBLASTUS BURMANICUS*, Z., n. sp.

Filis 1/1500 lin. crassis, ærugineis v. lutescentibus, indistincte articulatis, parum flexuosis, apice attenuatis, in fasciculos pallide fuscis, 1/300 lin. crassos, flexuosos, contortis; vaginis ad 1/100 lin. crassis, pellucidis, fibrillosis, margine undulatis. Pegu, Tharawa prope Henzadah, in muris cisternæ (3214b).

\*24. *CHTHONOBLASTUS KURZII*, Z., n. sp.

Litoreus, strato nunc obscure chalybeo, nunc luteo-viridi, filamentoso; filis 1/400—1/300 lin. crassis, violascentibus, v. pallide ærugineis, numerosis, in fasciculos laxè contortis, apicibus attenuatis, obtusis; articulis plerumque obsoletis, diametro ad triplum brevioribus, rarius granulatis; vaginis 1/90—1/50 lin. crassis, sordidis, hyalinis, interdum transversim striatis. Pegu, Elephant-point, in rhizophoretis in limosis ad arborum radices et ad algas majores maritimas (3273, 3274).

\*25. *LYNGBYA PALLIDA*, Z., n. sp.

Pallide viridis, adnata, filis 2-4 pollicaribus, cespitosis, flexuosis, luteis v. virescentibus, cum vagina lævi, achromatica, 1/60 lin., sine vagina 1/70 lin. crassis; articulis diametro 3-5plo brevioribus, subtilissime granulatis. Pegu in montibus Yomah, Wathabwot-choung in saxis arenosis submersis (3175).

\*26. *HYDROCOLEUM MENEGHINIANUM*, Kg.

Pegu, Elephant-point, in rhizophoretis, ad radices et arborum truncos submersos. (3263).

\*27. *HYDROCOLEUM STRIATUM*, Z., n. sp.

Rivulare, semipollicare, ærugineo-nigrum; vaginis 1/90 lin. crassis, transversim striatis, striis in 1/100 lin. 9; filis inclusis plerumque ternis, leviter contortis, 1/180 lin. crassis, dense granulatis, continuis, vel obsolete articulatis; diametro multo brevioribus. Pegu, in rivulo vadoso prope Sanyæ-wa ditionis Rangoon (3200).

\*28. *SIROCOLEUM INDICUM*, Z., n. sp.

Cespitè parvulo, vix semiunciali, viridi; vaginis a basi 1/60 lin. crassa ad 1/250 lin. attenuatis, achromaticis; filis initio pulchre ærugineis, apice obtusis, obsolete articulatis, articulis diametro æqualibus, 1/750 lin. crassis, deinde pallidioribus et divisione longitudinali et transversali in gonidia 1/1500 lin. crassa, seriata, diametro 2-4plo longiora, collapsis. (*Sirocoleo*



*Gujanensi* affine, sed multo tenuius. Genus accuratius observandum). Arracan, Akyab, in rupibus maritimis inundatis (3280).

\*29. *SYMPLOCA KURZIANA*, Z., n. sp.

Lignicola, pollicaris et ultra, griseo-æruginea, fasciculis strictis, densis, basi coalitis: filis rectis, pallide ærugineis, subtiliter granulatis, continuis vix hinc inde obsolete articulatis, cum vagina  $1/375$  lin. crassis; vaginis achromaticis, arctis, superne sæpe vacuis. Pegu, in fundo naviculæ fluminis Myitnan ad Thabyægon (3222).

\*30. *SYMPLOCA LUTESCENS*, Z., n. sp.

Lignicola, semipollicaris, vix ultra, fasciculis basi viridi-ærugineis, apicem versus lutescentibus, dense cespitosus; filis pallide ærugineis, apice evaginatiss, granulatis, sine vagina  $1/450$ — $1/300$  lin. crassis; articulis obsoletis; vaginis rigidis, achromaticis, ad  $1/175$  lin. crassis. Pegu, in planitie alluviali fluminis Irrawaddi, in fundo naviculæ, qua fluvium Lhein prope Beendau-Hseat transiit cl. Kurz (3160).

*NOSTOCHEÆ.*

\*31. *NOSTOC ELLIPSOSPORUM*, Rabenh. (*Hormosiphon*, Desmaz.) var. vaginis achromaticis.

Prome, in montibus Yomæ, inter muscos secus declivia rivuli Whay-dho (3178).

\*32. *NOSTOC GRANULARE*, Rabenh. (*Hormosiphon*, Kg.).

Pegu, Elephant-point, in aquis dulcibus stagnantibus (3291).

\*33. *NOSTOC PURPURASCENS*, Kg. (*N. rufescens*, Ag., forma purpurascens). Pegu, Kadeng-choung ad Natmadhee, natans (3230).

\*34. *NOSTOC RIVULARE*, Kg.

Pegu in montibus Yomæ, Koon-choung ad saxa arenosa humida (3176).

\*35. *NOSTOC HETEROTHRIX*, Z., n. sp.

Strato irregulariter expanso, olivaceo-viridi; filis leviter flexuosis, inæqualibus; alteris ærugineis, articulis globosis,  $1/600$ — $1/450$  lin. crassis, cytiodermate vix conspicuo hyalino; alteris fuscis, cytiodermate evidenti, colorato, articulis globosis v. ellipticis, ad  $1/175$  lin. crassis; cellulis perdurantibus ellipticis, ceteris paulo majoribus. (Forsan *Hormosiphon heterothrix*, Kg.?) Pegu, in valli Pazwoondoung, in rivulo Bala-choung (3196); secus declivia limosa fluminis Irrawaddi ad Khyoung-gyee (3163).

\*36. *NOSTOC KURZIANUM*, Z., n. sp.

Terrestre, thallo fusco-atro, irregulariter expanso, membranaceo; filis densis, parum curvatis, fulvis; articulis  $1/600$ — $1/500$  lin. crassis, sphaericis,



arctis, virescentibus; peridermate tenui, hyalino; cellulis perdurantibus globosis, ad  $1/400$  lin. crassis. Pegu, in montibus Yomæ centralis, Whathabwot-choung ad declivia limosa (4138).

\*38. *NOSTOC LIMOSUM*, Z., n. sp.

Terrestre, thallo olivaceo-fusco, tenui, indefinite expanso; filis brevibus rectis, dense implicatis, filis leptothrichoideis tenerrimis, articulatis, hyalinis intermixtis; articulis  $1/500$ — $1/300$  lin. crassis, auctis, globosis v. ellipticis, arcte connexis, granulis viridibus fartis; peridermate hyalino, achromatico; cellulis perdurantibus sphaericis, duplo majoribus. Pegu, in planitie fluminis Irrawaddi, in limo ripario fluvii Lein inter Theo-choung et Beendau Hseat (3157).

\*39. *NOSTOC SAXATILE*, Z., n. sp.

Subglobosum, vetustate intus cavum, magnitudine cerasi, olivaceo-fuscum, aggregatum; peridermate fuscescente, filis non vaginatis, flexuosis; articulis ellipticis, pallide ærugineis, subtiliter granulatis,  $1/600$ — $1/500$  lin. crassis; cellulis perdurantibus globosis, ad  $1/375$  lin. crassis. Pegu, in montibus Yomæ centralis, Kayeng-mathay-choung in saxis arenosis humidis (3180).

*SPERMOSIREÆ.*

\*40. *ANABÆNA BULLOSA*, Kg.

Pegu, in valli fluminis Sittang, in laculo prope Otwang, Tounghoo (3150); Pegu, in planitie fluvii Pazwoondoung, Bala-choung in limo (3241/6).

\*41. *ANABÆNA FLOS-AQUÆ*, Kg.

Pegu, in fluvio Lhein inter Beendau-Hseat et Theong-choung (3159).

\*42. *ANABÆNA STAGNALIS*, Kg.

Pegu, in fluvio Lhein prope Beendau-Eng (3161/6); Khyoung-gyee ad ripas fluminis Irrawaddi (3164).

\*43. *ANABÆNA SUBTILISSIMA*, Kg.

Rangoon, in limo canalium æstuariarum (3205).

\*44. *ANABÆNA INDICA*, Z., n. sp.

Strato tenui, expanso, obscure viridi, deinde fusco; filis rectiusculis, densis, subvaginatis, ærugineis, denique fuscis, apicem versus attenuatis; articulis tenuioribus  $1/650$  ad  $1/600$  lin. crassis, sphaericis, sæpe geminatis; crassioribus (sporangiiis) ad  $1/350$  lin. crassis, sphaericis, v. ellipticis; cytioplasmate dilute ærugineo, granuloso. Arracan, Akyab, in limo aquæ subsalsæ (3213, 3218); Pegu, in montibus Yomæ, Yaitho-choung, in arena humida fluvii frequens (3234).



- \*45. *CYLINDROSPERMUM HUMICOLA*, Kg.

Pegu, in limo ripario fluminis Irrawaddi ad Khyoung-gyee (3165).

- \*46. *CYLINDROSPERMUM MACROSPORUM*, Kg.

Pegu, Kadeng-choung ad Natmadhee, natans (3230).

### *RIVULARIÆ.*

- \*47. *GLOIOTRICHIA KURZIANA*, Z., n. sp.

Thallo globoso, lineam crasso, obscure olivaceo; filis ærugineis, brevibus, subulatis; articulis sæpe confluentibus, inferioribus ad  $1/300$  lin. crassis, diametro duplo brevioribus, superioribus eam æquantibus; vaginis ad  $1/150$  lin. crassis, achromaticis, sporis ærugineis v. lutescentibus, ovatis, basi ventricosis, ad  $1/180$  lin. crassis, diametro 2-4plo longioribus, dense granulatis; cellulis perdurantibus sphaericis,  $1/250$  lin. crassis.—Arracan, Akyab in plantis aquæ dulcis (3212).

- \*48. *RIVULARIA PEGUANA*, Z., n. sp.

Thallo gelatinoso, indefinite expanso, olivaceo, molli, hyalino; filis inclusis ærugineis, basi  $1/300$  superne  $1/500$  lin. crassis, apice plus minusve acuminatis, laxè intricatis, flexuosis, nunc distincte articulatis, articulis v. moniliformibus, diametro æqualibus v. duplo longioribus; nunc—præsertim in parte superiore,—continuis; cellulis basilaribus globosis,  $1/300$ — $1/175$  lin. crassis, denique in sporangia fusca permutatis.—Pegu, Kadeng-choung ad Natmadhee in truncis vetustis submersis (3228).

### *MASTIGOTHRICHÆ.*

- \*49. *MASTIGOTHRIX ÆRUGINEA*, Kg.

Pegu, Yenay Eng, in planitie alluviali fluminis Irrawaddi, ramis emortuis insidens (3132).

- \*50. *SCHIZOSIPHON PARIETINUS*, Næg.

Arracan, Akyab in parietibus Phari vetusti (3215).

### *SCYTONEMACÆ.*

- \*51. *SCYTONEMA AUREUM*, Menegh.

Pegu, in vafiis locis frequens, ad rupes et corticola.—Elephant-point (3276); inter Rangoon et San-yæ-wa (3352); in montibus Yomæ centralis, Kayeng-mathay-choung, ad saxa arenosa (3173).

- \*52. *SCYTONEMA CINEREUM*, Menegh.

Pegu, in templis pagoda dictis vetustis fere undique; Kya Eng in templo vetusto (3199).

var. b. *Julianum*, Rabenh. (*Drilosiphon Julianus*, Kg.). Pegu, in montibus Yomæ centralis, Yay-gna-choung ad saxa arenosa (3236).



\*53. *SCYTONEMA GRACILE*, Kg.

Pegu, in planitie fl. Irrawaddi, Palay Kweng in cisternæ muris (3224).

\*54. *SCYTONEMA TOMENTOSUM*, Kg.

Supra Rangoon, corticola (3466).

\*55. *SCYTONEMA PEGUANUM*, Martens.

Pegu, in valle Sittang (3139); Phoung-gyee (3118), in truncis arborum frequens.

\*56. *SCYTONEMA VARIUM*, Kg.

Pegu, in montibus Yomæ, in valle Choung-menah (Khaboung) (3152); Wachoung (Pazwoondoung) (3241/0).

\*57. *SCYTONEMA VIEILLARDI*, Mart.

Arracan, Akyab, in stagnis exsiccatis subsalsis (3287).

\*58. *SCYTONEMA FULVUM*, Z., n. sp.

Strato obscure olivaceo; filis curvatis,  $1/180$ — $1/120$  lin. cum vagina crassis, fulvis; pseudoramulis sparsis, divaricatis, conformibus; apicibus attenuatis, clausis, extremis hyalinis; filis internis vix conspicuis, pallide virescentibus; articulis obsoletis; vaginis lævibus, arctis, aureo-fulvis.—Pegu, Rangoon in foliis calami (3467); Yoma in cortice arborum (3146).

\*59. *SCYTONEMA FUSCUM*, Z., n. sp.

Strato pannoso, fusco-rubescens; filis 2-3 lin. altis, subsimplicibus, gracilibus, elongatis, basi  $1/180$ — $1/120$  lin. cum vagina, superne  $1/200$  lin. cum vagina,  $1/300$ — $1/250$  lin. sine vagina crassis; vaginis lævibus, saturate fuscis, apicem versus pallidioribus; filis inclusis pallide virescentibus, obsolete articulatis, granulatis, articulis diametro æqualibus.—Pegu, in terra nuda et ad declivia argillosa, Sanyæ-wa prope Rangoon in oryzetis (3201); in montibus Yomæ in valle fluvii Choung-menah (3153); Wachoung, in via cava (3187).

\*60. *SCYTONEMA KURZIANUM*, Z., n. sp.

Strato olivaceo; caespitulis vix lineam altis, compactis; filis  $1/300$  lin. cum vagina  $1/450$  lin. sine vagina crassis, subsimplicibus, basi coalescentibus, curvatis, internis articulatis, viridi-lutescentibus; articulis sæpe obsoletis, diametro æqualibus; vaginis achromaticis v. lutescentibus; cellulis perdurantibus globosis.—Pegu, Yoma, in cortice arborum (3141/a).

\*61. *SCYTONEMA MURALE*, Z., n. sp.

Strato compacto, spongioso, lineam crasso, sordide olivaceo, v. nigrescente; filis intricatis, flexuosis, parce ramosis; pseudoramulis conformibus, brevibus, cum vagina  $1/300$ — $1/200$  lin. crassis, luteis, apice cinereis, inter-



dum roseolis ; filis internis  $1/350$ — $1/300$  lin. crassis, pallide viridibus, apice hyalinis, distincte articulatis ; articulis diametro æqualibus, v. duplo brevioribus ; vaginis subachrois, arctis ; cellulis perdurantibus globosis.—Rangoon ad muros hospitii circuit-house dicti (3207, 3209).

\*62. *SCYTONEMA OLIVACEUM*, Z., n. sp.

Strato cespitoso, 2-3 lin. alto, olivaceo ; filis leviter flexuosis, rigidis, cum vagina  $1/150$ — $1/115$  lin. crassis ; internis  $1/180$  lin. crassis, cinereis, distincte articulatis ; articulis lamellosis, v. granulosis et linea transversali dimidiatis, diametro parum, hinc inde  $2\frac{1}{2}$  plo brevioribus ; pseudoramulis, divaricatis, sæpe geminis, non tenuioribus ; vaginis fuscis, lævibus. Pegu, in montibus Yomæ centralis, Zamayee-choung, in fissuris humidis rupium arenosarum (3235).

\*63. *SCYTONEMA PARVULUM*, Z., n. sp.

Strato tenui, tomentoso, fuscescente ; filis brevibus, subsimplicibus, attenuatis, basi  $1/375$  lin. superne  $1/500$  lin. cum vagina vix  $1/700$  lin. sine vagina crassis, a basi distincte articulatis ; articulis diametro æqualibus, vel longioribus, superne confluentibus ; vaginis fuscis, filis internis viridibus. Pegu, in saxis arenosis montium Yomæ australis (3156).

\*64. *SCYTONEMA (SYMPHYOSIPHON) RHIZOPHORÆ*, Z., n. sp.

Cespitulis obscure olivaceis (in siccatis cinereo-nigrescentibus), spongioso-hirtis, semilineam crassis ; filis fasciculatis, flexuosis, fuscis, parce pseudoramosis, cum vagina  $1/300$ — $1/225$  lin. crassis, apicem versus attenuatis, internis pallide ærugineis ; articulis diametro æqualibus, vel ad triplum brevioribus, sæpe obsoletis ; vaginis arctis, basi et apice brevi, acuminato, hyalinis ; cellulis perdurantibus oblongis. Pegu, Elephant-point, in rhizophoretis ad cortices arborum diversarum, imprimis *Sonneratiæ apetalæ* (3267).

\*65. *SCYTONEMA SUBCLAVATUM*, Z., n. sp.

Calcicola ; strato obscure olivaceo, filis fuscis, sæpe basi connatis, partim (junioribus ?) sursum incrassatis,  $1/30$ — $1/20$  lin. longis, simplicibus, curvatis, ad  $1/180$  lin. crassis ; partim elongatis, ramello uno alterove instructis,  $1/300$  lin. cum vagina crassis ; filis internis virescentibus, nunc obsolete, nunc distincte articulatis ; articulis diametro æqualibus ; vaginis arctis. (Forsan status *Scytonematis muralis*). Pegu, in domo vetusta lateritia oppidi Henzadah (3167, 3168, 3169).

\*66. *SCYTONEMA VIOLASCENS*, Z., n. sp.

Cespite erecto, 3-4 lin. alto, pallide violaceo ; filis basi  $1/150$ — $1/100$  lin. cum vagina  $1/130$ — $1/110$  lin. sine vagina crassis, fasciculatis, parce ramosis ; pseudoramulis interdum binis, adpressis, vel intricatis, elongatis, gracilibus, flagelliformibus, variegatis, violaceis, ærugineis et fusco-luteis, ad  $1/250$  lin.



attenuatis, apice pallidioribus vel hyalinis; articulis diametro ad duplo brevioribus, sæpe confluentibus; vaginis arctis, hirtis, hyalinis v. lutescentibus. Pegu, Yoma in valle Choungmenah (Khaboung) ad declivia argillosa (3154).

\*67. *POLYPOTHRIX BINATA*, Z., n. sp.

Lacustris, cæspitulis 2-3 lin. altis, ærugineo viridibus; filis pulchre ærugineis, primariis  $1/300$  lin. crassis, pseudoramulis divaricatis, elongatis,  $1/500$  lin. crassis; articulis inferioribus distinctis, sæpe dimidiatis, plerumque diametro duplo longioribus, rarius ei æqualibus v. brevioribus, subtorulis, supremis confluentibus. (Articuli sæpe ad modum *Sirosiphonis* longitudinaliter bipartiti). Pegu, Kya Eng, in radicibus submersis (3195, 3203) Eng-ga-na (3242, 3248).

*SIROSIPHONIACEÆ.*

\*68. *SIROSIPHON PARASITICUS*, Z., n. sp.

Strato cespitoso, fusco; filis virescentibus,  $1/200$  lin. cum vagina  $1/300$  sine vagina crassis, curvatis, parce ramosis; ramis ascendentibus, homogeneis; articulis sæpe obsoletis, vel confluentibus, duplici serie ordinatis, granulosis, diametro brevioribus; vaginis arctis, luteis v. hyalinis. Pegu, Yoma, Choungmenah, in sylvis sempervirentibus ad folia arborum et fruticum (3292).

*PALMELLACEÆ.*

\*69. *PLEUROCOCCUS VULGARIS*, Menegh. (*Protococcus*, Kg.).

Rangoon, ad parietes hospitii circuit house dicti (3210).

*DESMIDIEÆ.\**

\*70. *CLOSTERIUM STRIOLATUM*, Ehrenb.

Pegu, Kya Eng, inter plantas submersas aquaticas.

\*71. *PLEUROTENIUM BACULUM*, De Bary (*Docidium*, Bréb.).

Pegu, in palude prope Wanet, natans (3238/a).

\*72. *PLEUROTENIUM TRABECULA*, Næg. (*Docidium Ehrenberghii*, Bréb.).

Pegu, Eng-ga-na prope Phounggyee (3242).

\*73. *EUASTRUM ANSATUM*, Ralfs.

Pegu, Eng-ga-na (3242).

\*74. *EUASTRUM AMPULLACEUM*, Ralfs.

Pegu, Kya Eng.

\* These are only stray Desmids found by DD. Zeller and Rabenhorst amongst the Algæ. My collection of Burmese Desmids is in the hands of Mr. W. Archer of Dublin. (S. Kurz.)



## ZYGNEMACEÆ.

## \*74. RHYNCHONEMA KURZII, Z., n. sp.

Articulis sterilibus fine replicatis, diametro ( $1/120$ — $1/100$  lin.) 6-8plo longioribus, sporiferis tumidis; sporis fuscis, ellipticis, diametro ( $1/40$  lin.) 2-2½plo longioribus; fasciis spiralibus 2 laxis, torulosis, anfractibus 2. Pegu, Eng-ga-na (3242).

## \*75. SPIROGYRA ADNATA, Kg.

Pegu, Pazwoondoung, Balachoung (3247).

## \*76. SPIROGYRA CRASSA, Kg.

In lacu prope Rangoon (3251).

## \*77. SPIROGYRA DECIMINA, Kg.

Prome, Toung-naweng-choung (3155); Myoma, in rupibus fluminis Irrawaddi (3170); Pegu, Kenbatee in fonte scaturiente (3165/a); Pazwoondoung-choung ad Kyauzoo (3184). Alga vulgatissima Burmæ, præsertim in planitiebus alluvialibus.

Forma *crassior*, filis sterilibus ad  $1/38$  lin. crassis. Pegu, in montibus Yomæ centralis, Wathabwot-choung, in fluvio frequens (3174).

## \*78. SPIROGYRA IRREGULARIS, Næg.

Pegu, Yomah centralis, Wopyoo-choung (Khayengmathay-chg.) versus Ghalee Tay natans (3177); Rangoon in canalibus æstuariis subsalsis (3204).

## \*79. SPIROGYRA JUGALIS, Kg.

Pegu, Kya Eng (3198).

## \*80. SPIROGYRA LONGATA, Kg.

Prome, Khyee Thay in flumine Irrawaddi (3137); Arracan, Akyab (3211).

## \*81. SPIROGYRA MAJUSCULA, Kg.

Pegu, in palude quadam prope Thounggyee (3244).

## \*82. SPIROGYRA NITIDA, Kg.

Pegu, in palude inter Theanchoung et Oakkan (3161/a); Prome, Khyee-thay in flumine Irrawaddi (3137); Arracan, Akyab, in aqua dulci (3219).

## \*83. SPIROGYRA QUININA, Kg.

Arracan, Akyab in aqua subsalsa (3289).

var.  $\beta$ . inæqualis, Næg. Pegu, Beeling Kadeng-choung ad Kway ma-kheing (3232).

## \*84. SPIROGYRA TROPICA, Kg.

Arracan, Akyab, in aqua subsalsa (3289).



\*85. *ZYGNEMA STELLINUM*,\* Ag.

Pegu, Tonkyan in vicinitate rivuli Bala-choung (3289).

\*86. *ZYGNEMA VAUCHERII*, Ag.

Pegu, Kya Eng (3194).

\*87. *ZYGNEMA AMPLUM*, Z., n. sp.

Viride, siccatum obscure fuscum; articulis sterilibus diametro (1/60 lin.) ante divisionem 2-3plo longioribus, post eam æqualibus, v. sesquilon-  
gioribus; fructiferis non tumidis, zygosporis globosis, v. late ellipticis; filis  
in vagina 1/40 lin. crassa, tenui, continua, subtiliter granulosa, hyalina, in-  
clusis. Pegu, in laculo inter Phaunggyee et Kyauzoo (3246).

\*88. *MESOCARPUS INTRICATUS*, Hass.

Pegu, in palude inter Tean-choung et Oakkan (3161).

\*89. *MESOCARPUS SCALARIS*, Hass.

Pegu, Eng-ga-na (3242); Yoma australis, infra pagum Karensium  
Mui-hau dictum in rivulo (3256).

\*90. *STAUOSPERMUM FRAGILE*, Z., n. sp.

Filis luteolis, intricatis, fragilibus; cellulis diametro (1/140—1/100 lin.)  
5-10plo longioribus, ad genicula contractis; zygosporis quadrangularibus,  
1/100—1/80 lin. crassis; sporodermate lævi. Pegu, Rangoon in lacu  
(3252); Kadeng-choung ad Natmadhee (3223). In provincia Pegu, præcipue  
secus fl. Irrawaddi, vulgaris.

*VAUCHERIACEÆ.*\*91. *VAUCHERIA SESSILIS*, DC., a. *cespitosa*, Ag.

Pegu, Yoma centralis, Khayeng-mathay-choung (3172); var. b. *repens*,  
Hass. (forma terrestris); ibidem, in limo siccæcente (3181).

*ULVACEÆ.*92. *ENTEROMORPHA COMPRESSA*, L., var. c. *complanata* (*E. complanata*, Kg.).

Pegu, Elephant-point in rhizophoretis (3278); Arracan, Akyab, in mari  
(3281, 3284).

\*93. *PHYCOSERIS BURMANICA*, Z., n. sp.

Viridis, in sicco sæpius pallide olivacea, radice minuta, disciformi; sti-  
pite tenerrimo, rotundato, brevi, mox in phycoma planum, rigidum, basi  
oblique cuneatum atque attenuatum, gbovatum, rectum v. curvatum, 1-2 polli-  
care, margine in adultioribus crenulatum, transiente. Cellularum diameter  
1/300 lin. Pegu, Elephant-point, in rhizophoretis ad radices.



*DIPLOSTROMIÆ.*

\*94. *DIPLOSTROMIUM TENUISSIMUM*, Kg.

Pegu, Elephant-point, in rhizophoretis ad radices (3272).

*CONFERVACEÆ.*

\*95. *CONFERVA FUNKII*, Kg.

Pegu, in palude prope Phounggyee (3244).

\*96. *CONFERVA RHYPOPHILA*, Kg.

Pegu, in planitie fluminis Irrawaddi, Eng-suay in truncis submersis. (3165/c.).

\*97. *CONFERVA SUBSETACEA*, Kg.

Arracan, Akyab in aqua subsalsa (3288).

\*98. *CONFERVA BURMANICA*, Z., n. sp.

Albo-virescens, rigida, intricata; articulis diametro (1/130—1/100 lin.) 2½-5 plo longioribus. Pegu, Yenay-eng in planitie fl. Irrawaddi, in plantis aquaticis (3165/6).

\*99. *CONFERVA UTRICULOSA*, Kg.

Pegu, Yoma centralis, Khayeng-mathay-choung, in stagnis natans (3171); Tay Tay-choung (Zamayee) in limo siccescente (3179).

\*100. *CONFERVA INÆQUALIS*, Rabenh. (*Psychohormium*, Kg.); forma, filis ad 1/120 lin. crassis. Rangoon in aqua vadosa lacus natans (3243).

\*101. *RHIZOCLONIUM HOOKERI*, Kg.

Pegu, Elephant-point in limo marino (3260).

\*102. *RHIZOCLONIUM ARBOREUM*, Z., n. sp.

Obscure viride, siccatum cinerascens; filis a basi apicem versus paulo attenuatis, hinc inde ad genicula intumescens, brevissime radicanibus et geniflexis; articulis diametro (1/35—1/25 lin.) æqualibus, vel duplo longioribus; cytodermate crasso. Pegu, Elephant-point, in rhizophoretis ad corticem arborum (*Sonneratia apetala*) frequentissime truncorum latus ad septentrionem vergens dense investiens (3261).

103. *CLADOPHORA CALLICOMA*, Kg. (*Cl. glomerata*, forma III. Rabenh.) Pegu, Kadeng-choung ad Natmadhee. (3225).

\*104. *CLADOPHORA JAVANICA*, Kg.

Ibidem (3226).

\*105. *CLADOPHORA STREPENS*, Kg. (*Cl. fracta* c. *strepens*, Kg.).

Pegu, Yoma centralis, Wopyoo, choung (Khayeng-mathay-chg.) versus Ghalee Tay (3177).



106. *CLADOPHORA TRANQUÆBARIENSIS*, Kg.

Pegu, Yoma centralis, Tay Tay-choung, natans (3183).

\*107. *CLADOPHORA CODIOLA*, Z., n. sp.

Cespitosa, viridis, sicca pallida, pygmæa, vix 2 lin. longa, subsimplex; filis  $1/100$ — $1/75$  crassis, apice incrassatis, obtusis; ramellis raris, uni-articulatis; articulis diametro 8-20 plo et ultra longioribus, infimo perlongo; cytiodermate crasso, hyalino, lævi; cytioplasmate granulati. Pegu, Irrawaddi, Eng-suay in truncis submersis (3166).

108. *CLADOPHORA EXIGUA*, Z., n. sp.

Sordide viridis, cespitosa 1-2 lin. alto; filis inferne ramosis, rigidis; ramis paucis, divaricatis, elongatis; articulis primariis  $1/100$  ad  $1/90$  lin., mediis  $1/160$  lin., ramorum  $1/350$ — $1/250$  lin. crassis, diametro 2-3 plo longioribus, ad genicula constrictis; cytiodermate crassiusculo. Pegu, Balachoung, in conchis (*Paludina*.) (3197).

\*109. *CLADOPHORA (ÆGAGROPIA) CONTORTA*, Z., n. sp.

Cespitosa, pallide viridis, filis e radice pulposa convenientibus, simplicibus, perraro ramellum uniarticulatum emittentibus, 2-4 poll. longis, in funiculos contortis, basi  $1/80$  lin., sursum ad  $1/35$  lin. apice  $1/100$  lin. crassis; articulis cylindricis, valde inæqualibus, diametro 2-12 plo longioribus. Pegu Tonghoo, in fundo naviculi in fluvio Sittang (3143).

110. *CLADOPHORA MINUTISSIMA*, Z. (ad interim).

Pallide viridis, filis in cortice truncorum radicanibus, dense aggregatis, semilineam vix superantibus,  $1/250$ — $1/150$  lin. crassis, simplicibus, v. raro ramello unicellulari instructis, a basi apicem versus incrassatis; articulis diametro  $1\frac{1}{2}$ -3 plo longioribus; cytiodermate flaccido, hyalino, cytioplasmate lamelloso. (Forsan *Cladophoræ* ejusdam status juvenilis). Marina Elephant-point in truncis submersis (3264).

*ÆDOGONIACEÆ.*\*111. *ÆDOGONIUM APOPHYSATUM*, A. Br.

Pegu, Kya Eng (3195).

\*112. *ÆDOGONIUM BRAUNII*, Kg.

Pegu, Eng-suay non procul a flumine Irrawaddi infra Henzadah (3166/a); Kadeng-choung ad Natmadhee (3229).

\*113. *ÆDOGONIUM GRACILE*, Kg.

Pegu, Eng-suay in truncis submersis (3165/d).

\*114. *ÆDOGONIUM LANDSBOROUGHII*, Kg.

Pegu, prope Tonkyan supra Rangoon (3248).

\*115. *ÆDOGONIUM ROTHII*, Bréb.

In lacu Rangoneusi fluitans (3253).



\*116. *EDOGONIUM SCUTATUM*, Kg.,

Pegu, Kya Eng in radicibus (3195).

\*117. *EDOGONIUM TENELLUM*, Kg.

Pegu, in stagnis et fossis prope Tonkyan, vicum supra Rangoon (3248).

\*118. *EDOGONIUM VESICATUM*, Link.

Pegu, Eng-ga-na (3242); Yoma centralis, Zamayee-choung in saxis arenosis (3233).

var. g. fuscescens, Kg.

Pegu, Kya-eng in radicibus (3193).

\*119. *EDOGONIUM KURZII*, Z., n. sp.

Monœcum; cellula basilari biloba, articulo terminali obtuso, articulis diametro ( $1/45$ — $1/32$  lin.) 2-5 plo longioribus, sæpe medio dilatatis, v. cuneiformibus, passim uno fine transversim plicatis; oogoniis sparsis, raro seriatis, ellipticis, diametro ( $1/30$  lin.)  $1\frac{1}{2}$ -2 plo longioribus; oosporis fuscis, sphaericis, v. diametro paulum longioribus; antheridiis unicellularibus, lanceolatis, medio constrictis. Pegu, in palude prope Wanet (3255).

\*120. *BULBOCHLETE INTERMEDIA*, De Bary.

Pegu, Kya Eng (3195, 3203).

\*121. *BULBOCHLETE PEGUANA*, Z., n. sp.

Dense intricata, repetite ramosissima, ramis alternis vel oppositis, sensim attenuatis et setis longis, vix  $1/1500$  lin. crassis, terminatis; articulis fili primarii ad  $1/200$  lin. crassi 2-3 plo, ramorum  $1/300$ — $1/500$  lin. crassorum 5 plo et ultra longioribus; oosporis ignotis. Pegu, Yoma centralis, ad rupes calcareo-siliceas inter muscos in cacumine montis Kambala-toung, alt. 3200 ped. s. m. (3459).

### ULOTHRIXACEÆ.

\*122. *ULOTHRIX SUBTILIS*, Kg.

Pegu, Eng-ga-na (3242).

\*123. *SCHIZOGONIUM TENUISSIMUM*, Z., n. sp.

Pallide flavo-virens, filis simplicibus  $1/500$ — $1/375$  lin. crassis, passim ramellosis; cellulis diametro duplo longioribus, gonidiis oblongis. Martabania, in Chinchonæ plantationibus, 3500 ped. altitudinis, in rivulo Opo-choung, Shantounggyee (3142).

### CHROOLEPIDÆ.

\*124. *CHROOLEPUS FLAVUM*, Kg.

Yoma centralis, ad bambusarum culmos (3144).

var. filis tenuioribus, articulis longioribus, *Chr. flavi* et *elongati* intermedium. Yoma, ad arborum corticem frequens (3145).



\*125. *CHROOLEPUS LAGENIFERUM*, Hildebrand.

In lacu Rangoonensi, inter *Conservam inæqualem* in aqua vadosa natans (3243).

\*126. *CHROOLEPUS UMBRINUM*, Kg. (*Protococcus crustaceus*, Kg.).  
Pegu, Yoma, Yaitho-choung, corticola, frequens (3148).\*127. *CHROOLEPUS BOTRYOIDES*, Z., n. sp.

Cespitè siccitate pallide luteo, villosa, 2-3 lin. alto; filis flaccidis, ad 1/100 lin. crassis, lævibus; ramis subsecundis, divaricatis, attenuatis, apice 1/250 lin. crassis; articulis diametro  $1\frac{1}{2}$ -2 plo longioribus; spermatiis globosis, minutis, plerumque ad latera ramorum in cumulos botryomorphos aggregatis. Pegu, Yoma, in cortice arborum (3147).

128. *CHROOLEPUS CALAMICOLA*, Z., n. sp.

Cespitè intricato, viridi, (in sicco pallide lutescente); filis ramosis, ramis attenuatis, subsecundis, divaricatis; articulis infimis 1/120 lin. crassis, diametro sesquolongioribus; superioribus diametro (1/300 ad 1/180 lin.) 2-4 plo longioribus; spermatiis plerumque lateralibus, raro terminalibus, sessilibus, globosis v. ellipticis, 1/180 lin. crassis, solitariis, v. seriatis. Supra Rangoon, in silvis sempervirentibus in foliis Calami (3467).

\*129. *CHROOLEPUS ELONGATUM*, Z., n. sp.

Cespitosum, siccitate flavo-cinereum, filis rectis, rigidis, 1/150 lin. crassis, ramosis; ramis secundis, valde elongatis, acuminatis, 1/300—1/225 lin. crassis; articulis primariis diametro duplo, ramorum 4-6 plo longioribus; spermatiis ignotis. Pegu, Yoma, Yaitho-choung, in cortice arborum in sylvis sempervirentibus (3148).

\*130. *CHROOLEPUS FUSCO-ATRUM*, Z., n. sp.

Strato tenui, crustaceo, fusco-atro (in sicco); filis brevibus, rectis, v. parum curvatis, torulosis; ramis divaricatis; articulis fuscis, 1/400—1/300 lin. crassis, globosis, v. late ellipticis. Pegu, in valle Choungmenah (Kha-boung) non procul a Tonghoo, in sylvis sempervirentibus (3469).

\*131. *CHROOLEPUS KURZII*, Z., n. sp.

Semipollicare, viride, cespitosum, in fasciculos conicos dense implicatum, filis primariis ad 1/125 lin., ramorum ad 1/300 lin. crassis; articulis diametro 2-4 plo (rarius pluries) longioribus; ramis divaricatis, subsecundis; spermatiis lateralibus, creberrimis, seriatis, sessilibus v. breviter petiolatis, initio globosis, deinde crateriformibus, 1/250—1/60 lin. crassis. Pegu, Tonghoo, Choungmenah-choung in sylvis sempervirentibus ad folia fruticum (præcipue *Alsodeiæ*) (3149).



\*132. *CHROOLEPUS TENUE*, Z., n. sp.

Cespitulis exiguis, gregariis, aurantiacis, siccatis cinereis; filis primariis 1/375—1/300 lin. crassis, varie flexuosis; ramis divaricatis, interdum recurvis, 1/500—1/400 lin. crassis; articulis diametro æqualibus, vel ad duplum longioribus, torulosis; spermatiis globosis, terminalibus et lateralibus. *Chr. abietino* proximum, sed articulis omnibus plus minus inflatis, brevioribus et tenuioribus distinguendum. Pegu, Elephant-point, in rhizophoretis ad corticem *Sonneratiæ apetalæ* frequens (3268).

*CHÆTOPHORACEÆ.*\*133. *STIGEOCLONIUM TENUE*, H., *γ. gracile*, Kg.

Pegu, Beendau Eng in caulibus *Polygoni* (3141).

\*134. *STIGEOCLONIUM RANGOONICUM* Z., n. sp.

Cespitè vix 1½ lin. alto, dilute viridi, vel lutescente, dense implicato; filis primariis 1/375—1/250 lin. crassis; ramis subdichotome secundis, ad 1/900 lin. crassitiem attenuatis, flaccidis; articulis valde inæqualibus, diametrum æquantibus torulosis, ad genicula leviter constrictis, vel cylindricis et ea 2-6plo longioribus. In cisterna quadam oppidi Rangoon (3249).

\*135. *CHÆTOPHORA PISIFORMIS*, Ag.

Pegu, Phounggyee in laculo ad radices submersas (3190); Prome, Myitmakha-choung ad Gho-tau, in plantis aquaticis (3140).

\*136. *CHÆTOPHORA RADIANS*, Kg.

Pegu, Kya Eng in radicibus (3193).

\*137. *CHÆTOPHORA TUBERCULOSA*, Kg.

Pegu, in laculo inter Phounggyee et Kyauzoo (3245).

\*138. *CHÆTOPHORA STRICTA*, Z., n. sp.

Viridis, expansa, mollis, 1-2 lin. crassa; filis internis repetite et dichotome ramosis, strictis; ramis attenuatis, gracilibus, non piliferis; articulis oblongis, ad 1/350 lin. crassis, diametro 1½-3plo longioribus. Pegu, Kadeng-choung at Natmadhee in ramis emortuis submersis (3231); Prome, Khyee-thay, ad silices rivuli tenui aqua fluentis in flumine Irrawaddi (3136).

\*139. *GONGROSIRA PYGMÆA*, Kg.

Forma *tenuis*, non ultra 1/180 lin. crassa. Rangoon, ad rudera lateritia submersa (3250).

140. *GONGROSIRA ONUSTA*, Z., n. sp.

Flavo-viridis, cespitibus confluentibus, lineam crassis; filis e basi fibrosa continua articulatis; articulis diametro (1/150—1/100 lin.) 2—3plo longioribus; ramis numerosis, undique egredientibus, moniliformibus; articulis



ramorum omnibus oogonia globosa, ad  $1/125$  lin. crassa, formantibus; oosporis fuscis,  $1/250$  lin. crassis. Pegu, Elephant-point secus littora in truncis vetustis inundatis (3262).

### CHANTRANSIÆ.

\*141. CHANTRANSIA ROSEOLA, Z., n. sp.

Cespitulis minutis, roseo-chalybeis; filis  $1/400$ — $1/300$  lin. crassis, fastigiatis ramosis; ramis distantibus, erectis; articulis diametro 4plo longioribus. Pegu, Beendau Eng, in caulibus Polygoni (3141).

### BATRACHOSPERMACEÆ.

142. BATRACHOSPERMUM MONILIFORME, Roth.

Pegu, in gurgite profundo paludis prope Phoungyee, ad radices arborum (3188).

### HILDENBRANDTIACEÆ.

\*143. HILDENBRANDTIA ARRACANA, Z., n. sp.

Incrustans, indeterminata, vage expansa, arcissime adnata, fusco-purpurea; cellulis  $1/700$ — $1/600$  lin. crassis, obsolete angulosis, rotundatis, absque ordine coacervatis. Arracan, Akyab in rupibus maritimis frequens, (3282).

### CERAMIEÆ.

\*144. GONGROCERAS RADICANS, Z., n. sp.

Capillare, repens, pollicare, apicibus rectis, vel parum curvatis, non forcipatis; filis intricatis, subpectinatis, vel repete dichotomis, radicantibus; radiculis numerosis e parti inferiori egredientibus, continuis, vel articulatis; articulis cylindricis, diametro nunc  $1\frac{1}{2}$ -2plo longioribus, nunc ei æqualibus, supremis brevioribus; zonis superioribus confluentibus; tetrachocarpis plerumque infra apices ramorum verticillatim dispositis. Pegu, Elephant-point in rhizophoretis ad radices truncosque arborum inundatos, (3274).

### HALYMENIÆ.

\*145. CATENELLA OPUNTIA, Grev.

Pegu, Elephant-point, frequens in rhizophoretis et secus littora in truncis vetustis inundatis, (3265).

### GELIDIEÆ.

146. ACROCARPUS INTRICATUS, Kg? (*Gelidium*, Kg., *Sphærococcus*, Ag.).

Arracan, Akyab in rupibus marinis, (3279).



*POLYSIPHONIEÆ.*

\*147. *POLYSIPHONIA SUBADUNCA*, Kg., *major*, ramis crebrioribus, minus strictis.

Pegu, Elephant-point, in rhizophoretis frequens, (3274).

\*148. *BOSTRYCHIA INTRICATA*, Mont.

Pegu, Elephant-point, in rhizophoretis frequens, (3263).

\*149. *BOSTRYCHIA RIVULARIS*, Harv.

Pegu, Elephant-point, in rhizophoretis ad arborum radices, (3271).

*DELESSERIEÆ.*

\*150. *HYPOGLOSSUM BENGALENSE*, Mart.

Pegu, Elephant-point, in truncis vetustis inundatis ad littora satis frequens, (3266).

\*151. *HYPOGLOSSUM LEPRIERII*, Kg.

Pegu, Elephant-point, in rhizophoretis frequens, (3270).

*APPENDIX.*

CHARACEÆ BURMANICÆ,\* determined by Dr. A. Braun, Professor of Botany in Berlin.

1. *NITELLA ROXBURGHII*, A. Br.

Pegu, Kya Eng, (3295).

2. *NITELLA MICROGLOCHIN*, A. Br. sp. v. subsp. nov. *N. oligospiræ* proxima.

Arracan, in valle Koladyne in stagno quodam silvatico.

3. *N. OLIGOSPIRA*, A. Br.

Pegu, Kya Eng, (3294).

4. *CHARA GYMNOPTIS*, A. Br.

Arracan, frequentissima in oryzetis inundatis vallis Kolodyne, (1964).

\* It may not, I think, be uninteresting to insert at this opportunity the few *Characeæ*, which have as yet been found in Burma. I am indebted to Prof. A. Braun who obligingly sent me the list a long time ago, for the names of the species. (S. KURZ.)



ON THE PTEROPIDÆ OF INDIA AND ITS ISLANDS, WITH DESCRIPTIONS OF NEW OR LITTLE KNOWN SPECIES,—by G. E. DOBSON, B. A., M. B., *Staff Surgeon, H. M.'s British Forces.*

(With Plate XIV.) •

[Read July 5th, received July 18th, 1873.]

Although Dr. W. Peters has done so much towards clearing up the synonymy of the *Pteropidæ* as well as of other families of Chiroptera, much yet remains to be done before a correct list of the species can be obtained.

The state of confusion into which the species of this family have fallen, in common with most species of Chiroptera, is mainly due to the great imperfection of the original descriptions, from many of which it is impossible to recognise the family to which the species belongs.\* This imperfection in description has arisen chiefly from the general ignorance respecting the Order which has prevailed amongst Zoologists, who seem to have shared the vulgar antipathy to these animals, if we may judge from the small amount of attention they have received, and also from the want of proper material in the Museums. Most of the *Pteropidæ* being large bats, and therefore unlikely to be preserved by collectors in spirit, have been described from dried specimens, and this also has added much to the imperfection of the description.

Much work, therefore, remains to be done both in obtaining well-preserved duplicates, in comparing them with the type specimens, and in producing from them descriptions from which it may be possible for naturalists in general to determine the species.

If the species of the genus *Pteropus*, as given by Drs. Peters and Gray,† be enumerated, there will be found to be not less than fifty.

The distribution of these fifty species is as follows :—

Continent of India and Burma, .....	1
Malay Archipelago, .....	25
China, Japan, and Loo-choo Islands, .....	4
Solomon Islands; New Caledonia; New Hebrides; Fiji Islands; Marianne and Viti Islands, .....	9
Australia, .....	5
Africa and its Islands, .....	6

\* Thus Dr. J. E. Gray remarks (P. Z. S. Lond., 1866, p. 148)—“The generic characters of *Aello*, as given by Dr. Leach, occupy nearly a page of a quarto book, and yet no one has been able to discover the genus. One could not have a more convincing proof that it is not mere length of character that is required to define a genus.”

† See Peters in *Monatsb. Berlin Akad.*, 1867, p. 323, and Gray's *Catalogue of Monkeys, Lemurs and Fruit-eating Bats*, 1870.



It is very remarkable that, supposing the localities to be correct or approximately so, one half of the whole number of species is distributed among the small islands of the Malay Archipelago, while a single species—*Pteropus medius*—is the sole representative, hitherto discovered, of the genus in the Continent of India and Burma.

That a large proportion of the species should be found in the Malay Archipelago and adjoining Islands might be expected, as these animals like monkeys can live only where a constant supply of fruit is attainable throughout the whole year, but the same conditions obtain in the greater part of the Peninsula of India, and especially in Equatorial Africa, yet scarcely one-seventh of the whole number has been found in these regions.

The Malay Archipelago is, therefore, either the original and special home of the genus from which a few species have wandered into India and Africa, or many species remain undiscovered in the latter countries, and probably many of the so-called species which go to make up the large number from Malayana have been founded on insufficient grounds.

I have not the least doubt that the real number of species is much less than that recorded, and that many described as new by Temminck and others will, with the accession of additional and more perfectly preserved specimens to the collections hitherto available in our Museums, be found referable to a few really distinct species. This may be especially expected in the case of those species that have been founded on differences in the colour of the fur, which appears to have been regarded by some zoologists as of equal importance with the colour of the feathers in birds.

I have elsewhere\* dwelt at some length on the variability of the colour of the fur in many species of bats, and have shown that, in the *Pteropi* especially, individuals belonging to the same species present very different shades of colour according to sex age and season, and probably also, but in a less degree, according to locality.

Differences in the form of the skull and in the teeth have been also used to distinguish the species, but these, though of the greatest importance, are not satisfactory, if alone available as a means of diagnosis, for it should, surely, be possible to distinguish the species of a given vertebrate animal without first finding it necessary to kill and make a skeleton of it.

It is, therefore, desirable that, in the description of species, certain external characters may be given from which the living animal can be known, and these, I believe, may be found in the shape and relative size of the ears, and in the quality and distribution of the fur.

In all the Chiroptera, we find one or more of the organs of special sense greatly developed to supplement or, in some genera, almost wholly replace the visual organs (which in most cases are very rudimentary or, where

\* Proc. Zool. Soc. of London, 1873.



moderately developed, can be of little use owing to the nocturnal habits of the animals), and this development varies remarkably according to family, genus, and species.

Thus the peculiar form of the nose-leaf taken with the shape of the ears at once characterises the *Rhinolophidae*, and each species of the family may be distinguished by secondary modifications of these organs alone.

And in those families of bats where the nostrils are not furnished with appendages, the form and relative size of the ear will generally be found to be the most important characters for readily and accurately determining the species, and, next to and with these, the quality and distribution of the fur.

I shall employ this principle of diagnosis in the following descriptions of the species of Frugivorous Bats known to inhabit Continental India and Burma, and the Islands of the Bay of Bengal.

### Genus I.—PTEROPUS, Brisson.

*Nostrils projecting; upper lip with a vertical groove in front bounded laterally by naked prominences; index finger with a distinct claw, metacarpal bone of second finger shorter than the index finger; wings from the sides of the hairy back; wing-membrane attached to the back of the first phalanx of the second toe; tail none.*

*Dentition*:—*in.*  $\frac{4}{4}$ ; *c.*  $\frac{1-1}{1-1}$ ; *pm.*  $\frac{2-2}{3-3}$ ; *m.*  $\frac{3-3}{3-3}$ .

*A.—Ears acutely pointed.*

PTEROPUS MEDIUS. Pl. XIV, Fig. 1.

*Pteropus medius*, Temminck, Monog. Mammal., I, p. 176.

„ *edwardsii*, (in part) Geoff., Ann. du Mus., vol. xv., p. 92.

„ *leucocephalus*, Hodgson, Journ. As. Soc. Beng., iv., p. 699.

„ *assamensis*, McClelland, Proc. Zool. Soc. Lond., vii., p. 148.

Ears long, with acutely pointed tips, the upper third of the outer margin concave beneath the tip; in fully grown individuals the longest diameter of the opening of the external ear, from the point of junction of the outer and inner margins below to the tip, measures one inch and a half.\*

Nostrils projecting, with a deep intervening emargination; upper lip with a narrow vertical groove in front bounded laterally by naked rounded prominences continuous with the integument of the nostrils.

\* The length of the ear (anteriorly) as given in the tables of measurements accompanying this paper (and also wherever mentioned in previous papers) has been determined by measuring the distance between the termination of the outer margin below and the tip. The breadth has been ascertained by means of a string passed round the ear posteriorly from the inner to the outer margin.



The ears are naked except at the bases posteriorly, and a narrow triangular portion covered with short hairs terminating towards the middle of the outer margin; anteriorly, the anterior flattened edge of the inner side of the conch is covered from the base upwards for about one-third of the length of the ear.

The face is naked in front of a line joining the inner angles of the eyes, and on either side of the naked space (which corresponds to the position of the nasal bones) a few long fine hairs arise from separate papillæ. The fur is rather dense and moderately long on the back of the head, neck, and shoulders, but short and appressed on the back, narrowing to about two inches in width across the loins. A narrow line of short fur passes outwards on to the wing membrane posterior to the humerus for rather more than half its length; the elbow is quite naked, but a few short hairs cover a narrow portion of the wing-membrane, about one inch and a half long, posterior to the forearm. The femur, and the interfemoral membrane as far as a line corresponding to the position of the semi-circular band on the under surface of the membrane are covered; the tibiæ are naked, or have only a few very short hairs; the feet are quite devoid of hair.

On the under surface, the whole body is well covered; the antebrachial membrane is similarly covered as far as a line drawn from the knee to a point about one inch posterior to the elbow joint, thence the hair passes outwards on the wing-membrane posterior to the forearm, terminating at about the beginning of the distal third of the radius. The thighs are covered, the legs and inter-femoral membrane are quite naked.

The nape of the neck and the shoulders are usually reddish yellow or golden yellow or pale straw colour, but every shade of these colours has been observed, the different colours and intermediate shades appearing to depend on sex, age, season, or locality. The darker shades are usually found in females.

The chest and upper part of the abdomen are either of the same colour as the nape of the neck or of a darker hue. The remainder of the fur black or dark brown often mixed with grayish hairs.

The fur of the neck is coarser and longer than that covering other parts of the body. In most male specimens a circular tuft of rigid unctuous hairs, of a deep reddish yellow colour, is found on each side of the neck, situated midway between the base of the ear and the origin of the ante-humeral portion of the wing-membrane from the shoulder. In a large male obtained near Calcutta, these tufts occupy a space one inch in diameter, and the hairs composing them measure about one-third of an inch in length.

*Hab.*—India generally, from Kachh to Burma, and from the Himalaya to Ceylon.

To this section of the genus belongs *Pt. edulis*, Péron et Lesueur, from



Java and Sumatra, which has been reported from Tenasserim,\* and may probably be found in the Nicobar Islands. This species, the largest of known bats, may be readily distinguished from *Pt. medius* by its ears, and by the distribution and quality of the fur. The ears are proportionately shorter and narrower than in the Indian species, and the concavity of the upper third of the outer margin is much less distinct. In a specimen from Java, in the Indian Museum, the ears are about the same length as in the most adult specimen of *Pt. medius*, while its forearm exceeds that of the latter species by more than two inches, and the tibia by an inch and a half. Compared with *Pt. medius* the light coloured portion of the fur extends further down upon the shoulders, and the breadth across the loins occupied by hair is proportionately much greater: this is well seen when specimens of equal size are compared, the breadth of the fur in this position in the not fully grown *Pt. edulis* being nearly, if not quite, double that in the adult *Pt. medius*. Elsewhere the distribution of the fur is similar in both species, but the hair on the wing-membranes and legs is conspicuously much longer in *Pt. edulis*.

*B.—Ears rounded at the tip.*

PTEROPUS NICOBARICUS. Pl. XIV, Fig. 2.

*Pteropus nicobaricus*, Fitzinger, Sitzungs. Wien. Akad., 1860, p. 389, *nomen nudum*.

„ *melanotus*, Blyth, Cat. Mammal. Mus. As. Soc. Beng., 1863, p. 20, *nom. nudum*.

„ *nicobaricus*, Zelebor, Reise der Oester. Freg. 'Novara,' Säugethiere, 1868, p. 11.

Ears rounded off at the tip, their breadth nearly equal to their length; the upper third of the outer margin slightly flattened, not concave, the lower two-thirds convex; in fully grown individuals the longest diameter of the opening of the external ear, from the point of junction of the outer and inner margins below to the tip, scarcely exceeds one inch.

The distribution of the fur of the body is similar to that of *Pt. medius*, but the hair on the wing-membrane is very much shorter.

In some male specimens the colour of the fur also corresponds very closely with that of *Pt. medius*; generally, however, the lighter coloured portions of fur on the nape of the neck, and on the shoulders and chest, are of a deeper hue than in the latter species, usually dark ferruginous red or chestnut; females and young males are commonly *intensely black throughout*; in some female specimens the position of the light-coloured tippet in the male is indicated by a reddish tinge.

\* A very badly preserved dried skin of an immature specimen of some species of *Pteropus*, in the Indian Museum, has been identified by Mr. Blyth with *Pt. edulis*, and the locality 'Tenasserim' recorded in his Catalogue. The specimen is in such a very bad condition I am able neither to confirm nor to correct Mr. Blyth's identification.



The skull differs from that of *Pt. medius* in being shorter, wider across the maxillary and nasal bones, and in having nearly all its processes and ridges much more strongly defined. The distance between the small anterior upper premolars exceeds that in *Pt. medius* by one-tenth of an inch. The *foramen ovale* is divided in the centre by a process of bone, in *Pt. medius* it is undivided. A post-orbital process of the zygomatic arch is present, though not so well developed as in *Pt. medius*.

The mandible is shorter and its rami deeper than in *Pt. medius*; the coronoid process is more developed vertically, its posterior margin is nearly straight, not deeply concave, and its superior angle is narrowly, not broadly rounded off as in the latter species.

The teeth are stouter in *Pt. nicobaricus* but their general characters are the same in both species.\*

*Hab.*—Andaman and Nicobar Islands, probably Java also. An old dried specimen in the Indian Museum is labelled Java, but not numbered in Blyth's Catalogue.

Neither Fitzinger nor Blyth described this species, though they invented names for it. Zelebor's description occupies nearly two pages of a quarto book, and very careful measurements of the original specimen are given, yet, as his description is taken from a young individual and contains few really diagnostic characters, I was unable to feel certain that specimens obtained by me last year from the Andamans and Nicobars should be referred to this species. But Dr. Peters has lately, at my request, very kindly compared some specimens sent to him from the Indian Museum with the type specimens of *Pt. nicobaricus* in the Vienna Museum. He informs me that they agree in the form of the ear and feet. With this additional information I feel no hesitation in referring the specimen from which the above description is taken, to that species.

	Pteropus medius.					Pteropus nicobaricus.					Pt. edulis.
	Calcutta.	Maunbhum.	Calcutta.	Pegu.	Assam.	Nicobars.	Andamans.	Andamans.	Andamans.	Java.	Java.
	♂	♂	♂	♂	♂	♂	♀	♂	♀	♀	♂
Length, head and body, .....	9.0	...	7.5	9.0	10.5	10.5	8.8	8.0	9.8	9.0	13.0
" head, .....	3.1	3.15	2.75	3.0	3.0	3.0	3.0	3.0	2.9	2.8	3.5
" ear (anteriorly), .....	1.5	1.40	1.45	1.5	1.45	1.05	1.05	1.1	1.05	1.05	1.5
Breadth, ear, .....	0.85	...	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.75
Length, from ear to tip of nostril, .....	2.7	...	2.4	2.6	2.8	2.65	2.45	2.5	2.35	2.35	2.8
" from eye to tip of nostril, .....	1.3	...	1.1	1.15	1.2	1.15	1.15	1.10	1.15	1.05	1.2
" forearm, .....	6.6	6.7	6.0	6.2	6.3	6.5	5.8	5.9	5.8	5.4	8.5
" thumb, .....	2.7	2.7	2.8	2.65	2.6	2.8	2.5	2.6	2.6	2.35	3.0
" second finger, .....	12.5	13.5	11.5	11.8	11.9	12.5	11.0	10.5	11.5	11.5	16.0
" fourth finger, .....	8.5	8.5	7.8	8.0	8.0	8.5	7.4	7.8	7.8	8.0	10.5
" tibia, .....	3.0	3.2	2.7	2.8	2.8	3.0	2.8	2.7	2.6	2.6	4.0
" foot and claws, .....	2.3	2.3	2.0	2.0	2.0	2.0	1.7	2.0	2.0	2.0	2.4
" calcaneum, .....	1.0	0.9	0.85	0.8	0.8	0.9	0.65	0.85	...	0.75	1.5

\* For the definition of the genus *Pteropus* see De Blainville, Ostéographie.



belong to the same species, and, accordingly, to avoid the possibility of introducing a fresh synonym, I have retained Fitzinger's name.

CYNOPTERUS BRACHYSOMA. Pl. XIV, Fig. 7.

*Cynopterus brachysoma*, Dobson, Journ. A. S. B., 1871, p. 260.

I have little to add to my original description of this species.

The ears are much rounded off above, and the upper third of the outer margin is straight or slightly convex; the presence of a rounded lobe at the base of the outer margin at once distinguishes this species.

The difference in the measurements of the breadth of the ear given with the original description and in the table below is due to the measurement having been taken in the former case across the concavity of the ear, anteriorly; in the latter, by means of a string round the convexity, posteriorly.

Genus III.—CYNONYCTERIS, Peters.

*Nostrils projecting; upper lip with a wide groove in front with smooth not elevated margins; index finger with a distinct claw; metacarpal bone of second finger exceeding, or equalling, the index finger in length; wings from the sides of the hairy back; wing-membrane from the base of the second toe; tail short, distinct.*

*Dentition*:—*in.*  $\frac{4}{4}$ ; *c.*  $\frac{1-1}{1-1}$ ; *pm.*  $\frac{2-2}{3-3}$ ; *m.*  $\frac{3-3}{3-3}$ .

CYNONYCTERIS AMPLEXICAUDATA. Pl. XIV, Fig. 8.

*Pteropus amplexicaudatus*, Geoff. Ann. du Mus., Vol. xv, p. 96.

„ *Leschenaultii*, Desmarest, Mammal., p. 110.

„ *amplexicaudatus*, Temm., I, p. 200.

„ *seminudus*, Kelaart, Journ. As. Soc. Beng., xxi, p. 345.

„ *Leschenaultii*, Blyth, Cat. Mammal. Mus. As. Soc. Beng., p. 21.

Head long, triangular; upper lip with a wide groove directly continuous with the emargination between the nostrils, the edges of the groove smooth, not thickened as in *Pteropus* or *Cynopterus*; ears moderate, triangular, rounded at the tip, the upper half of the outer margin straight, the lower half convex.

Posteriorly the ears are naked except at their bases, anteriorly the conch is covered with a few very short fine hairs. The fur of the body extends upon the humerus and upon the fleshy part of the forearm, the remaining part to the carpus has only a few very fine hairs. The portion of the back and wing-membrane covered with fur across the loins is not more than an inch in breadth. The interfemoral membrane is densely covered with hair at the root of the tail, and on either side as far as lines drawn from the knee joints to the base of the free portion of the tail; the remaining portion, the legs and a considerable part of the wing-membrane beyond, are clothed with short, thinly-spread fur which extends along the wing membrane and legs





to the back of the feet. Beneath, the ante-humeral membrane is clothed with rather long thinly-spread fur, and the wing-membrane is similarly covered as far as a line drawn from the knee to a point about half an inch posterior to the elbow, whence the fur extends outwards to the carpus. The interfemoral membrane, the legs, and the feet are covered with a few very short hairs.

First upper premolar minute, equally distant from the canine and second premolar; second premolar exceeding lower canine in vertical extent; first lower premolar small, less than half the size of the second premolar; second premolar nearly equal to lower canine in vertical extent.

*Hab.*—From the Persian Gulf to the Philippine Islands. Bengal; Southern India; Ceylon; Burma; Celebes; Amboyna; Timor; Aru Islands.

CYNONYCTERIS MINOR, n. sp. Pl. XIV, Fig. 9.

Ears smaller and much narrower than in *C. amplexicaudata*; muzzle also proportionately shorter.

The minute first upper premolar is closely wedged in between the canine and second premolar; in *C. amplexicaudata* it is separated by a narrow interval from both these teeth.

The distribution of the fur is somewhat similar to that of *C. amplexicaudatus*, but it is much shorter on the wing-membrane and almost absent from the backs of the tibiae, from the adjoining portions of wing-membrane, and from the feet.

*Hab.*—Java.

	Cynopterus.								Cynonycteris.		
	C. marginatus.		C. andamanensis.			C. sherzeri.		C. brachysoma.	C. amplexicaudatus.		C. minor.
	Calcutta.	Darjeeling.	Andamans.	Andamans.	Andamans.	Car-Nicobar.	Car-Nicobar.	Andamans.	Persian Gulf.	Bengal.	Java.
Length, head and body, s.....	4.4	3.9	3.7	3.3	3.4	3.75	3.7	2.9	4.1	4.3	3.7
" tail, .....	0.4	0.6	0.4	0.35	0.4	0.55	0.55	0.25	0.65	0.65	0.45
" head, .....	1.5	1.5	1.4	1.3	1.4	1.25	1.3	1.25	1.7	1.7	1.55
" ear (anteriorly), .....	1.0	0.9	0.7	0.7	0.68	0.6	0.63	0.6	0.8	0.8	0.68
Breadth, ear, .....	0.6	0.6	0.4	0.4	0.4	0.3	0.32	0.4	0.55	0.55	0.35
Length, from ear to tip of nostril, .....	...	1.2	1.15	1.0	1.15	1.0	1.05	1.0	1.4	1.4	1.3
" from eye to tip of nostril, .....	...	0.5	0.5	0.48	0.48	0.45	0.45	0.4	0.65	0.6	0.45
" forearm, .....	3.0	2.9	2.6	2.6	2.8	2.7	2.7	2.2	3.2	3.15	2.8
" thumb, .....	1.1	1.1	1.0	0.95	1.0	1.0	1.0	0.9	1.25	1.0	0.9
" second finger, .....	5.0	4.9	4.7	4.2	4.7	4.7	4.75	4.0	5.4	5.2	4.4
" fourth finger, .....	3.7	3.5	3.3	3.1	3.5	3.4	3.5	3.0	3.7	3.9	3.3
" tibia, .....	1.1	1.1	1.0	0.95	1.05	1.0	1.0	0.8	1.35	1.4	1.05
" foot and claws, .....	0.7	0.7	0.6	0.55	0.6	0.6	0.6	0.5	1.0	0.85	0.75



## Genus IV.—EONYCTERIS, (nov.)

Nostrils not projecting; upper lip with a shallow vertical groove in front; index finger without a claw; thumb short, part of terminal phalanx included in the wing-membrane; metacarpal bone of second finger equal to the index finger in length; wings from the sides of the hairy back; wing-membrane from the base of the first toe; tail short, distinct.

Dentition:—*in.*  $\frac{4}{4}$ ; *c.*  $\frac{1-1}{1-1}$ ; *pm.*  $\frac{2-2}{3-3}$ ; *m.*  $\frac{3-3}{3-3}$ .

First upper premolar minute.

EONYCTERIS SPELÆA. Pl. XIV, Fig. 10.

*Macroglossus spelæus*, Dobson, Journ. A. S. B., 1871, p. 261, pl. x, fig. 3, 4.

When first describing this species, I placed it in the genus *Macroglossus* on account of its very close resemblance to *M. minimus*, the type of that genus, in the form, number and arrangement of the teeth. Subsequently, however, in the MS. of a 'Catalogue of Chiroptera in the Indian Museum' I placed it in a separate subgenus '*Eonycteris*' on account of the very different attachment of the wing-membrane to the foot and sides. Lately, Dr. Peters writes to me that he is convinced, after a very careful examination of specimens sent to him from the Indian Museum, that the differences existing between this species and *M. minimus* are of generic importance, and require the formation of a new genus for its reception.

Since I described this species in 1871 I have come to regard the dentition of the Chiroptera as of less importance in their classification than many other characters. I believe that, although the teeth of *Macroglossus minimus* and *Eonycteris spelæa* correspond very closely, these species yet present many structural differences of more than subgeneric importance, and I agree with Dr. Peters that the latter species should be placed in a separate genus. I have, accordingly, raised my subgenus '*Eonycteris*' to the rank of a distinct genus of Pteropidæ.

## Genus V.—MACROGLOSSUS, F. Cuvier.

Nostrils not projecting, upper lip not grooved in front; index finger with a distinct claw; thumb moderate; metacarpal bone of second finger equal to, or longer than, index finger; wings from the sides, their points of attachment separated by a considerable interval from the spine; wing-membrane from the base of the fourth toe; tail very short.

Dentition:—*in.*  $\frac{4}{4}$ ; *c.*  $\frac{1-1}{1-1}$ ; *pm.*  $\frac{2-2}{3-3}$ ; *m.*  $\frac{3-3}{3-3}$ .



*First upper premolar nearly equal in size to the second.*

MACROGLOSSUS MINIMUS. Pl. XIV, Fig. 11.

*Pteropus minimus*, Geoff. Ann. du Mus., xv, p. 97.

*Macroglossus minimus*, Temminck, Monogr. de Mammal., I, p. 191.

*Pteropus rostratus*, Horsfield, Zool. Researches in Java.

This species is so well-known, and has been redescribed so carefully by Temminck, that no further description of it is here necessary.

It is found in abundance in the deep warm valleys about Darjiling. It extends from India through Burma to the Malay Archipelago.

DESCRIPTION OF A NEW SPECIES OF VESPERTILIO FROM THE NORTH-WESTERN HIMALAYA,—by G. E. DOBSON, B. A., M. B.

VESPERTILIO MURINOIDES, n. sp., Pl. XIV, Fig. 12.

This species is closely allied to *V. murinus* of Europe, from which, however, it is readily distinguished by the following characters:—

The general form of the ear is triangular, with narrow rounded tips: the inner margin is very faintly convex, almost straight, in its upper third, and the outer margin is concave beneath the tip, the remaining portion convex with a faint concavity opposite the base of the tragus.

In *V. murinus* the inner margin of the ear is strongly convex from the base to the tip, the concavity of the outer margin beneath the tip is very feeble, and there is a distinct emargination, almost angular, opposite the base of the tragus, succeeded by a well-developed terminal lobe; the general form of the ear is, moreover, oval, not triangular.

The tragus is slender and acutely pointed, with a quadrangular lobe at the base of its outer margin. In *V. murinus* the tragus is subacutely pointed, and the lobe at the base of the tragus is remarkably small.\*

The fur is dark brown above, with light brown tips; beneath, dark brown, almost black, with grayish tips.

The first upper premolar is very small, scarcely visible from without, and not much larger than the second. In *V. murinus* this tooth is distinctly visible from without and much larger than the second premolar.

The specimen (an adult female preserved in spirit) from which the above description is taken, was obtained at Chamba, at an elevation of about 3000 feet, by H. McLeod Hutchison, Esq., H. M.'s 14th Regiment.

\* The relative shape and size of the ears and tragi of *V. murinus* and *V. murinoides* are well shown in Pl. XIV, figs. 12, 13.



A dried specimen in the Indian Museum, labelled *V. murinus*, belongs also to this species. It is said in Blyth's Catalogue to have been sent from Masuri by Captain Hutton. The measurements of both specimens compared with those of *V. murinus*, L. from Europe are as follows:—

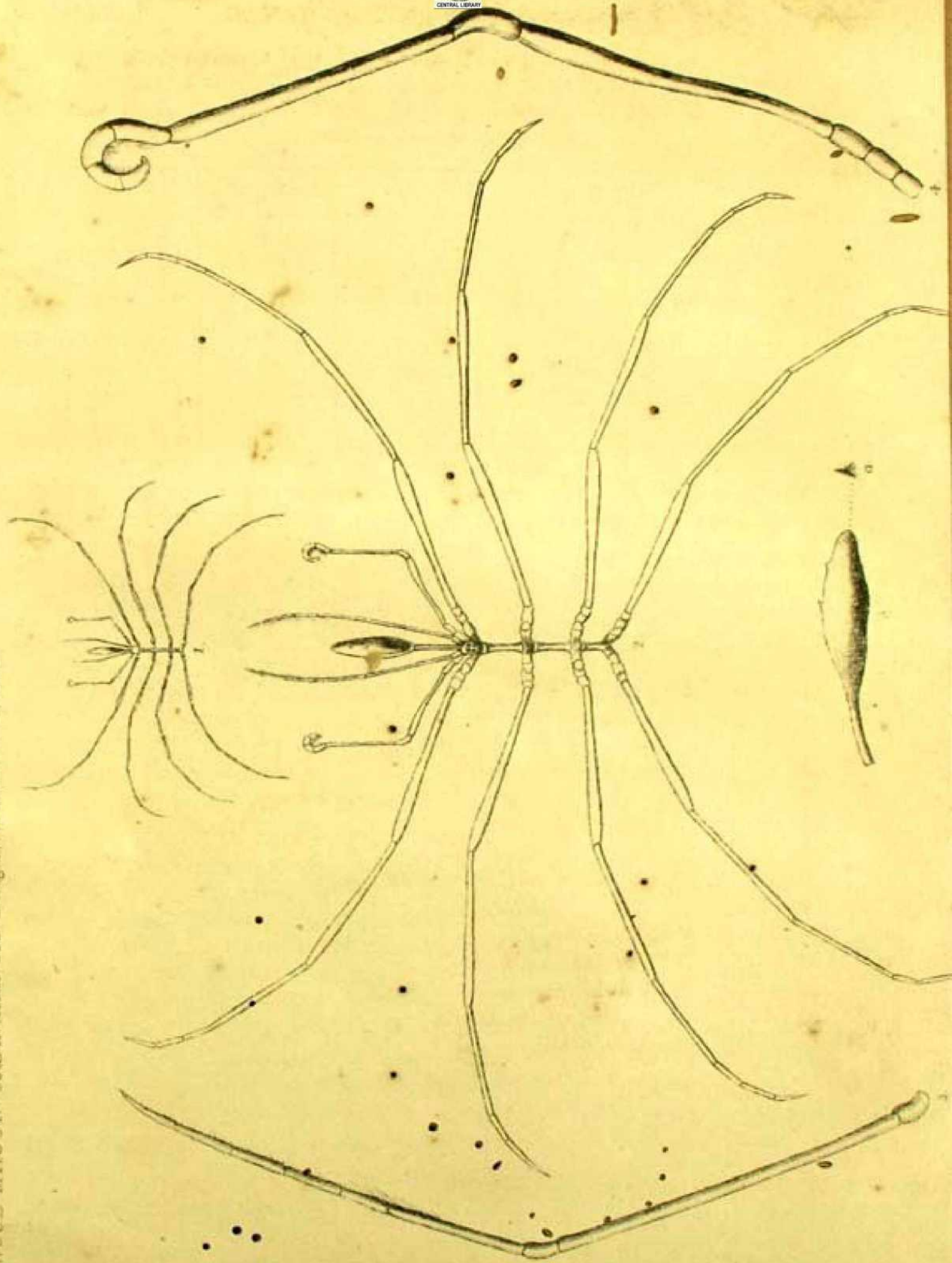
	<i>V. murinoides</i> .		<i>V. murinus</i> .	
	♂	♀	♂	♀
Length, head and body, .....	2.7	2.5	2.7	3.0
" tail, .....	2.1	2.1	1.9	2.3
" head, .....	0.95	0.9	1.05	1.1
" ear, (anteriorly), .....	0.8	0.85	1.0	1.0
Breadth, ditto, .....	...	0.58	0.75	0.75
Length, tragus, .....	...	0.4	0.1	0.5
Breadth, ditto, .....	...	0.1	0.12	0.12
Length, forearm, .....	2.2	2.1	2.25	2.5
" thumb, .....	...	0.4	0.5	0.5
" second finger, .....	3.75	3.4	3.3	4.3
" fourth ditto, .....	2.8	2.8	2.65	3.3
" tibia, .....	0.9	0.9	0.95	1.05
" calcaneum, .....	0.9	0.9	0.7	0.9
" foot and claws, .....	0.5	0.5	0.5	0.6

The measurements given in the third column are those of a not fully grown specimen of *V. murinus*.

#### *Explanation of Plate XIV.*

1. Ear of *Pteropus medius*.
2. " " *nicobaricus*.
3. " " *edulis*.
4. " *Cynopterus marginatus*.
5. " " " var. *andamanensis*.
6. " " *sherzeri*.
7. " " *brachysoma*.
8. " *Eonycteris amplexicaudata*.
9. " " *minor*.
10. " *Eonycteris spelæa*.
11. " *Macroglossus minimus*.
12. " *Vespertilio murinoides*.
13. " " *murinus*.
14. " *Murina cyclotis*.









1. *Pteropus medius*. 2. *Pt. niconaricus*. 3. *Pt. edulis*.  
 4. *Cynepterus marginatus*. 5. *C. marginatus*, var. *andamanensis*.  
 6. *C. shergeri*. 7. *C. brachysoma*. 8. *Cynonycteris amplexicaudata*.  
 9. *C. minor*. 10. *Eonycteris spelaea*. 11. *Macroglossus minimus*.  
 12. *Vespertilio murinoides*. 13. *V. murinus*. 14. *Murina cyclothis*.





# JOURNAL OF THE ASIATIC SOCIETY.

Part II.—PHYSICAL SCIENCE.

No. IV.—1873.

DESCRIPTIONS OF NEW SPECIES OF UNIONIDÆ.—By W. THEOBALD, ESQ

[Received July 29th, 1873; read August 6th, 1873.]

(With plate XVII.)

UNIO BHAMOENSIS, n. s., Pl. XVII, Fig. 1.

*Testâ subtriangulato-ovatâ, postice acuminatâ, margine ventrali modice rotundato, umbonibus tumidiusculis, lævigatis, pustulis parvis aliquando armatis, decorticatis. Epidermide tenuissimâ, lævi, subpolitâ, læte viridi, in senioribus flavescente. Testâ concentricè subrugatâ, lineis paucis sive rugis angustis ligamentum versus plus minusve subradiatim notatâ, et antice rugis paucis perbreuibibus leviter corrugatâ. Dentibus cardinalibus lamellatis, et denticulatis, in valvâ dextrâ singulo, multifisso, in sinistrâ gemino, posteriore triangulari et umbonem juxta posito, anteriore lamelliformi, striato. Nacrea argenteâ et iridescente.*

*Hab. prope Bhamo, regno Birmanico; necnon in Prome occidentali Provinciâ Pegu.*

*Lat. 52, alt. 40, crass. 26 mm.*

A rare species, in Western Prome where alone I have met with it in Pegu, and remarkable for its smooth thin epidermis. The posterior slope alone is conspicuously ornamented with sculpture, but in my largest specimen from Bhamo and in some others also, the peculiar sculpturing of *U. burmanus*, W. Blfd. is faintly but distinctly perceptible over part of the valves towards the umbones especially. A small specimen of 36 mm. from Western Prome exhibits distinctly also the two rows of spines which characterise the next species, so that it seems that *U. burmanus*, *U. bhamoensis*



and *U. mandelayensis* constitute a natural little sub-group of osculant species at once distinct, but connected and sufficiently distinguishable from any of the ordinary Indian types. I have not, however, felt justified in separating them from the great Indian "*corrugatus*" group in my forthcoming catalogue of Indian shells.

UNIO MANDELAYENSIS, n. s., Pl. XVII, Fig. 2.

*Testâ cuneate subtriangulâri, margine ligamentali recto, ventrali, rotundatâ; valde inæquilaterali: antice lævi, umbones versus leviter corrugatâ; postice ab umbonibus usque ad angulam posteriorem fortiter plicato-corrugatâ. Epidermide lævi, tenui, subpolitâ, glaucâ sive viridi-flavâ, lineis plurimis radiantibus obscure pictâ. Umbonibus decorticatis, granulosis, lineis duobus pallidis 5-6 muricatè spinigeris, ornatis. Lineis ad marginem tendentibus, spinis vero vix ad medium valvæ attingentibus. Dentibus sicut in precedente.*

*Hab. prope Mandelay, regno Birmanico.*

*Lat. 53, alt. 40, crass. 31 mm.*

In only one specimen have I seen the muricate spines descend below the centre of the valves, but the pale linear bands whereon they stand usually descend to the margin.

The peculiar sculpturing of *U. burmanus* is also seen in this species though less strongly marked, and though sometimes carried over a good portion of the valves, yet is usually most pronounced on the posterior slope.

UNIO FEDDENI, n. s., Pl. XV., Fig. 3.

*Testâ quadrato-ovali, concentrice sulcatâ, antice gibbose rotundatâ, postice dilatatâ, subtruncatâ; parum inæquilaterali. Umbonibus decorticatis, haud prominentibus. Epidermide lævi, subpolitâ, viridescenti-flavâ. Dentibus cardinalibus lamelliformibus, striatis; in valvâ dextrâ singulo, serrato, in sinistrâ geminis triangularibus, striatis et serratis. Nacrâ cærulescenti-albidâ.*

*Hab. in Peemgunga fluvio, Indiæ centralis. Teste F. Fedden.*

*Lat. 40, alt. 29.5, crass. 19 mm.*

This very peculiar and marked form which somewhat recalls by its outline the American *U. securis*, seems a rare species and was collected sparingly among numbers of fine specimens of *U. wyngungensis*, Lea, in Central India by my colleague Mr. Fedden after whom I have named it. It falls naturally within the great "*corrugatus*" group, though there are few better marked varieties than it.

UNIO GOWHATTENSIS, n. s., Pl. XVII, Fig. 4.

*Testâ quadrato-ovatâ, antice rotundatâ, postice declive truncatâ, margine ventrali recto. Umbonibus decorticatis. Epidermide flavescente, postice*





*viridescence. Testâ concentricè striatâ et rugis plurimis minutis valde approximantibus angulariter seu fulgurate granuloso-crispatâ, postice tantum radiatim granuloso-crispatâ. Dentibus cardinalibus bifidis in utrâque valvâ. Nacrea cærulescenti-albidâ, iridescente. In senioribus granulationes valde inconspicuæ fiunt.*

*Hab. prope Gowhatti in Assam.\**

*Lat. 39, alt. 25.5, crass. 18 mm.*

The only other *Unio* that I am acquainted with possessing the peculiar fulgurate and granulose sculpture of this species is *U. crispisulcatus*, B., and to that group it must be referred, for greatly as the two species at first sight would seem to differ I have little doubt that intermediate forms connecting them will eventually be discovered. Fig. 4a represents the sculpture enlarged and fig. 4b that of *U. crispisulcatus*, B. for comparison.

MONOCONDYLEA AVÆ, n. s., Pl. XVII, Fig. 5.

*Testâ oblongâ, solidiusculâ, antice rotundatâ, postice curvatim truncatâ. Margine ventrali recto; ligamentali convexo. Umbonibus decorticatis. Epidermide piceâ, in junioribus luteo-flavescente lineis tenuibus obscure radiatim notatâ. Testâ incrementi lineis concentricè rugatâ, postice plicis paucis raro notatâ et valde evanescentibus. Dentibus minimis ut in *M. salweeniana*. Nacrea cærulescente, umbones versus flavescente.*

*Hab. prope Mandalay regno Birmanico.*

*Lat. 96, alt. 52, crass. 28 mm.*

This species differs considerably from the ordinary forms of *M. salweeniana* by its great smoothness and its elongated form. It resembles in the former respect the Philippine *M. Cumingi*, Lea, and young specimens sometimes exhibit a trace of faint sculpturing along the posterior slope much as in *M. inoscularis*, Gould, but all the adults I have seen have been quite devoid of sculpture.

SPHERIUM AVANUM, n. s., Pl. XVII, Fig. 6.

*Testâ quadrate rotundâ, tumidâ, antice rotundatâ, postice truncatâ, dilatâ, equilaterali. \*Epidermide, leviter et concentricè corrugatâ, postice levissime radiatâ. Umbonibus prominentibus, tumidis, osculantibus; colore pallide stramineo, tribus fasciis purpureis umbonalibus radiatim picto. Ligamento umbones versus inflato.*

*Hab. prope Ava.*

*Lat 7.5, alt. 6.6, crass. 5.2, mm.*

A single specimen of this rotund or pisiform species occurred among a number of specimens of *Corbicula* and other fresh-water shells received from Ava.

\* Obtained by one of the collectors of the Indian Museum.—[Ed.]



ON THE MUDDY WATER OF THE HUGLI DURING THE RAINY SEASON WITH  
REFERENCE TO ITS PURIFICATION AND TO THE CALCUTTA WATER SUP-  
PLY.—*By* D. WALDIE, Esq.

(Received Oct. 29th ; read Nov. 5th, 1873.)

CONTENTS.

- I.—Introduction,—construction of the Filters at Palta, difficulties in their working—question as to the cause of this,—true cause, according to the author, is the peculiar nature of the water.
- II.—Desirableness of explaining the reason of this peculiarity,—considerations which led to its discovery,—its nature,—experimental evidence in proof.
- III.—Corroborative evidence from other sources, direct and indirect.
- IV.—Details of experiments connected with it and results.
- V.—Further corroborative evidence and additional explanatory remarks.

I.—The works for the supply of Calcutta with water have been in operation since the early part of 1870. The nature and arrangement of the filtering materials in the filtering tanks at Palta were decided upon chiefly from the results and conclusions to which I came after a series of experiments made during the rainy seasons of 1868 and 1869, for the purpose of ascertaining what was likely to be most suitable and efficacious for filtering the muddy water of the Hugli during the floods that extend from June to September or October annually. These experiments also included an examination of the value of a particular contrivance called Spencer's Regulating Cup, to which great importance was attached by the Engineer who designed the works. The general conclusions to which I came were, that this Regulating Cup possessed no *special* value, for that the retardation of the flow of water which was stated to be its particular function could be attained equally well or better by other means ; and that the better sand of the two kinds submitted to me for comparison was the fine sand from the sand-bank in the river, which, as it could be obtained on the spot, was called Palta sand. The other sand, called Magra sand from the locality at which it was found, was considerably coarser in grain, and was stated to be more like that used for filters in England. Though well enough aware of this, I decidedly preferred the Palta sand for filtering the muddy water of the rains, which was the period of special difficulty. For the remainder of the year, I considered it of little importance which kind of sand should be used.

In accordance with my recommendation, the filters were fitted up with Palta sand and without the regulating caps. They worked well during the first rainy season ; but afterwards, particularly during last season (1872), there was so much difficulty in getting water filtered through them sufficiently



clear, and in the required quantity, owing to the largely increased demand, that they were pronounced a failure by the Superintending-Engineer, who advocated a trial of the coarser sand combined with the Regulating Cup, with, as he said, assurance of success, and in the view of adapting this arrangement to the whole eight filters if found satisfactory.

No more complete condemnation of the arrangements I had recommended could well have been made. Reasons were given for it, of which I need only state the principal. The Palta sand was too fine, and consequently rapidly became choked up; such sand was not used in England. It was a principle laid down by Engineers that the muddy particles should not penetrate more than an inch or two below the surface of the sand; this was not the case here, as they penetrated deep into the sand, and made it foul throughout. The fine sand retarded the flow of water too much, and speedily became choked up by the deposition of mud; the proper retardation and regulation of the flow should be effected from below, either by a greater depth of coarser materials, or by the use of the Regulating Cup.

My replies to these reasons were that the fine sand was not too fine for the water which was to be filtered, and that if not used in England, neither was such water filtered in England. This mud of the Hugli water during the rainy season could not be prevented from penetrating deep into the sand, at least if the water were to pass at such rate as would be practically of use; that the choking up of the sand to a certain extent, instead of being an objection, was essential to its proper action as a filter for this water, and the object should be not to prevent but to regulate it,—and that it could be prevented neither by a greater thickness of coarse material nor by regulating cups. And, further, that the difficulty and consequent great amount of labour and trouble in filtering the water during the rainy season was caused, not by the particular arrangement or nature of the filtering materials but by the nature of the water itself; and, consequently, that the proposed remedy was entirely delusive, and would certainly fail.

Though no formal opposition, so far as I am aware, has ever been made to my statements or opinion respecting the quality of the water, neither has the conclusion been formally admitted as correct, and it has been overlooked or neglected in all reasoning on the subject, at least as a sufficient explanation of the difficulty. The principles of sand-filtration were appealed to, and these were explained to depend chiefly on the attractive power of the coarser particles of sand for the finer particles of the mud suspended in the water; and this was represented as the most important part of the process,—“such is, in fact, filtration,”—apparently almost to the exclusion of what was called mere straining. This explanation I hold to be totally erroneous. The most important part of the process is straining, the prevention of the passage of particles through narrow crevices between the grains of sand; next is depo-



sition by gravity, on the upper surface of these granules, of still finer particles;\* and last, and least important of all, is the mutual attraction of particles of mud and sand independent of gravity. The influence of all of these processes will be affected by the greater or smaller size of the particles of mud in suspension, and the difficulty in getting the water to pass clear will be the greater the smaller the particles are. Hence the great difficulty with the water in question, the particles being so very fine.

II.—The peculiarity of the Hugli water from June to October I had always connected with the tropical rains and melting of the snows at the sources of the Ganges, occurring together so as to form one great flood of four or five months duration, instead of occasional floods to which rivers of European countries are subject,\* exceeding these greatly both in amount and in duration. I had not, however, been able to offer any other than conjectural explanations of its slowness in clearing by settling and of the difficulty in filtering it, of which I had found abundant evidence as a matter of fact. Attention having been again directed toward the subject by the circumstances previously referred to, I was led again to think of the advantage it would give me to be able to state some reason for my belief that the cause of difficulty lay in the nature of the water; some explanation of this peculiarity,—a reason why it should be so,—some generalisation shewing that it was not an isolated fact, but one of other similar facts admitted and acknowledged. Indeed, ever since it had been so forcibly brought under my own notice by my filtration experiments, and fixed in my own mind at least as a certainty, I had been alive to everything, old and new, that appeared to have a bearing on the subject, whether it were practicable means of purifying the water or a way of explaining the difficulty.

With respect to purifying muddy water generally there were certain methods which were well known and others less generally. The use of alum and other salts of alumina for such a purpose had long been known: salts of peroxide of iron, a substance chemically having much analogy with alumina, had more recently been introduced, and in my opinion they were even superior to salts of alumina. These substances act by the alumina or peroxide of iron being separated from its combination with the acid by alkaline matter which might be added along with them, or by the action of the carbonate of lime present in many waters, or even simply by large dilution, as in this case the base tends to separate from the acid. The alumina or oxide of iron separates in loose soft flakes which envelop or attract the fine particles of the mud, and carry them down with them, leaving the liquid quite clear. Indeed many other substances that produce flocculent precipitates by the addition of another substance have the same effect; thus by adding a solution of sulphate

\* Well illustrated by Wanklyn and Chapman in the 2nd edition of their treatise on Water Analysis.





of copper, and then a little soda, oxide of copper is thrown down carrying the mud with it. I have, indeed, made use of this method for precipitating the fine, suspended mud for chemical examination; the oxide of copper being removed from the precipitate, after collection, by ammonia and acetic acid, and the mud washed. This process, when the precipitants are employed in proper quantity, is speedy and convenient.

There is another class of substances which operate in a similar way, namely, alkalies and alkaline earths, such as Soda and Lime. These combine with the carbonic acid that keeps carbonate of lime in solution, which becoming insoluble is consequently precipitated. When Lime is used an additional quantity of carbonate of lime is produced. This, in fact, is Dr. Clark's well-known process for softening such waters as owe their hardness to carbonate of lime in solution. The precipitate formed carries down other matters with it leaving the water clear. The objection to the use of this process is the large quantity of additional sediment produced, and the risk of some prejudicial effect on the quality of the water, at least if not carefully managed.

Another class of substances the mode of action of which is not so evident, is acids. I do not know when this was first noticed. Graham, Miller, and Hofmann in their Report on the London waters, June 1851, speaking of the impurities, refer to "this clay tinge which resists the action of acids." Whether from this hint or not, I do not recollect, but I myself employed acids in 1866 for the purpose of clarifying the muddy waters of the Hugli during the rains.\* A small quantity of Nitric or Hydrochloric acid added to a large bottle of muddy water so altered and precipitated the mud that next day, or even in a few hours, it could be filtered clear with ease. I used alkalies, also, and perchloride of iron; but did not prosecute the subject further, my object having been simply to get the water clear with as little addition of foreign matter as possible; and nothing was better than a little of these acids,—even of acetic acid.

There is yet another class of substances the action of which is equally if not more difficult to explain, namely, those substances usually called neutral salts, both alkaline and earthy. The first direct notice I found of this was in some remarks in the 'Chemical News' of 3rd April, 1868, by Mr. W. Skey, Chemist to the Geological Survey of New Zealand, on the property of this class of substances to clarify muddy water. In this he specifies that 1 grain of common salt clarifies 5 ounces of muddy water and 1 grain of chloride of calcium or barium 10 ounces, 1 grain of lime 15 ounces and 1 grain of sulphuric acid 50 ounces. He thinks that these substances must act solely from their affinities for water, as it is not at all likely that they undergo any decomposition themselves. In the 'Chemical News' of 8th

\* Journ. As. Soc. Beng., 1867, Vol. XXXVI, Pt. II, p. 7.





July, 1870, is a short abstract from the 'Comptes Rendus' of the Academy of Sciences, of 20th June 1870, of a paper by Dr. C. Schloesing on the same subject, in which, it is stated, he refers to river waters contaminated with clay being readily clarified by 1000th part of chloride of calcium or other salts of lime, and being then readily filtered, while previously they rapidly choked the filter. He refers to several rivers, such as the Rhine in its lower course and the Duranee which supplies Marseilles, as being notorious for this peculiarity. Then in the same Journal of 12th May, 1871, Mr. Skey notices this as a re-discovery on the part of Schloesing, and says that 1 grain of chloride of calcium is sufficient for 10 ounces of muddy water or 50,000 grains, an evident misprint for 5000 grains. He also notices a paper on the so-called molecular movements of microscopic particles by Professor Jevons, who has some theory about this coagulation of clay being due to the water becoming by such addition a conductor of electricity, and the clay particles charged with electricity.

Besides all these direct observations, there is a phenomenon which had long (long before these observations were made) come under the observation of chemists in filtering and washing certain precipitates and sediments, namely, that for a time, while there is saline matter present in solution, the filtered liquid comes clear, but when, by continuing to wash such substances by distilled water, these saline matters become much reduced in quantity, then the filtered liquid flows muddy, the solid substance passing in a state of very fine division through the pores of the filtering paper. The chemist to avoid this adds a proportion of some saline substance (such as chloride of ammonium or muriate of ammonia) which will not interfere with his subsequent proceedings, and so is enabled to wash the sediment or precipitate free from everything except the substance which he has added. He can get rid of this afterwards by other means if it be necessary. This peculiarity especially occurs with clays and substances more or less analagous to them, such as Zirconia and Titanic acid. Another illustration is given when we attempt to extract the saline matters soluble in water from clayey soils. When the soil is first mixed with distilled water and allowed to settle, the supernatant liquor may be clear: if this be poured off and more distilled water be mixed with the residue, it will not settle and clear so readily, and if the process be repeated, it may take a very long time to do so. Just in proportion as the saline matter is removed, the fine clay separates with greater difficulty from the pure water.

It is to be observed that the substances here referred to, namely, neutral salts, are just the same sort of matter that exists in natural waters in small quantity. Reflecting on the difficulty, with the impression of the above-mentioned facts on my mind, on or about the 1st August last, the question occurred to me:—How small a quantity of such substances is sufficient





so to change the character of the mud in the river water of the rains as to enable it to settle with sufficient readiness, and in such a state as to render the water capable of being filtered without difficulty? Will the difference of quantity between that of the saline matter which exists in the water of the rainy season and that, say, of December be sufficient? Will the addition of such small quantity of the same kind of saline matter that exists in the river water to the water of the rainy season, so change its character that these difficulties in settling and filtering will be removed? Without delay a few experiments were instituted and their results observed, and these results shewed that the question was solved in the affirmative and the whole difficulty cleared up. The Hugli water during the rains contains too much pure water in proportion to its saline constituents, or these natural precipitants are present in too small quantity to precipitate the mud, as they do in other localities which have no tropical rainfall to produce so great dilution. And now my previous conviction as to the cause of the peculiarity was at once confirmed and explained.\*

The first experiment was made by means which came at once to hand. One quarter of a litre of muddy water from the river was mixed in a bottle with an equal volume of water from a tank which, in the dry season, I had found to contain a considerable quantity of saline constituents. Now, from the rains, I knew that it must be considerably more diluted, nevertheless not so diluted as the river water. In another bottle, for comparison, was mixed an equal quantity of the river water with the same volume of distilled water. It seemed natural to think that this mixture with distilled water would settle most speedily, more particularly as the tank water contained much glutinous vegetable matter; nevertheless, notwithstanding this disadvantage, the mixture with the tank water settled best. It was not a very good experiment, yet the result was quite distinct.

Then solutions of sodium and of calcium chloride (common salt and muriate of lime) were prepared of known strengths. The amount of saline constituents in the river water during the rainy season was pretty well known from former analyses, and these solutions were added in such quantity as approximately to double the quantity of saline constituents in the water, and thus bring it near the composition of the river water of December as regards alkaline and earthy salts. This produced an improvement in the settling, very slight in the case of common salt, very decided in that of chloride of calcium (muriate of lime). This at once shewed, what was afterwards abundantly confirmed, that lime salts were much more efficacious than alkaline salts. I shall return to this part of the subject further on.

\* At the meeting of the Society on 4th August last I intimated that I had discovered what I believed to be the true explanation of the difficulty with the water. *Vide Proceedings for August, 1873.*



Another obvious-looking plan was to dry a measured portion of the water and add its solid constituents to an equal quantity of water, so as to double the total amount. But there were practical difficulties in this process, in the changes the constituents would undergo by evaporation; it was, however, done thus: a portion of filtered water from the Calcutta hydrants was concentrated by evaporation over the water-bath to one-fifth of its volume; after this carbonic acid gas was passed through the concentrated liquor in order to redissolve the carbonates of lime and magnesia which had separated. One volume of this concentrated water was now mixed with four volumes of muddy river water, so as to make up the original quantity. This mixture, on being allowed to stand, settled well and the water could be filtered easily. In all cases a similar bottle of the muddy water, unmixed with anything, was placed beside these mixed waters for comparison.

In all the above experiments the waters were allowed to stand 24 or 48 hours to settle. This was a point I had calculated on, as the object was not to clarify the waters as rapidly as possible, but to imitate the settling and clearing of other natural waters or of the Hugli water itself during the dry season, by assimilating its composition so far as regards soluble salts to that of those.

III.—I have examined the tables given in Bischoff's *Chemical Geology*\* of the composition of various river waters for anything to be found bearing on this subject, and the author's remarks connected with rivers. The varieties of composition are obvious, and a few rivers are to be found containing but a small quantity of saline constituents and particularly of earthy salts in their waters. In a few cases the composition is given at different localities or at different periods of the year, but generally there is not enough of information to connect these facts with the subject under consideration. Two analyses of the Rhine water at Basle and at Strasburg shew fully 14 parts of Carbonate of Lime and Magnesia in 100,000: again at Bonn in March, 1852, there are fully 10 parts; in March, 1857, only  $4\frac{1}{2}$  parts; but in the former case the river was very low and of the usual clearness, in the latter it was much swollen and very turbid. Bischoff has a chapter on mechanical deposits from water, in which he notices various particulars respecting rivers. Of torrents which issue from glaciers, he says, all of them roll along in a turbid grey milky or dark stream according to the nature of the pulverized rock. Generally speaking, in rivers, the quantity of suspended matter increases with the height of the water, and the substances dissolved diminish. The suspended matter consists generally of clay, but in limestone districts it may consist partly or chiefly of carbonate of lime itself. Of course even water containing a considerable quantity of soluble salts of lime may be muddy, but if the mud consist of clay, the mud





will settle readily by repose. If the suspended matter in such waters consist partly or chiefly of carbonate of lime, how it will be affected by the soluble salts present I am not prepared to say, as I have had no opportunity of examining such waters. A French author, whom I shall quote presently, speaks of waters which are never clarified entirely by repose; such are, as he calls them, "*les eaux blanches de Versailles*," which owe their milky tint to their contact with layers of calcareous marl. Whether these waters contain soluble salts of lime or not, I do not know.

In a note to the chapter referred to, Bischoff mentions that Th. Scheerer\* had found that "the deposition of suspended matter is hastened when certain salts—alum, sulphates of copper and iron—are dissolved in the water. "But since a solution of chloride of sodium behaves like pure water, it cannot be expected that the suspended matter is deposited more quickly in the sea than in rivers." Now here is a mistake, for solution of chloride of sodium does not behave like pure water. Mr. Skey, more correctly, thinks that the transparency of the sea may depend on the precipitation of mud by the saline matter. Scheerer's observations must I think have been too hastily or imperfectly made.

The French works just referred to,† very valuable no doubt for what they were intended, principally engineering, did not, however, contain much of the sort of information I was in search of. That by Darcy gave me some worth noticing. It contains accounts of the filtering operations at Chelsea, Southwark, Thames Ditton, York, Hull, Paisley, Glasgow and Marseilles, also of the natural filters of Nottingham, Perth, Toulouse and Lyons. The natural filters are out of the range of the present enquiry, the first four appear to be on a similar plan to those at Palta, the latter three are different in their arrangements for cleaning the sand. Those of Gorbals, Glasgow, are not sufficiently well described, those of Paisley are; in both the clearing is effected by passing the water from below upwards, but, as the nature of the water is not at all likely to have any analogy with the water under consideration, I need not notice them. The filters at Marseilles, however, are worthy of a little attention. The water which supplies Marseilles is derived from the Durance. This water, as well as that of the Rhone, judging from the description, must have a considerable similarity to that of the Hugli during the rains, at least during certain periods, requiring a long time to settle and become clear. From some things stated in the account of the filtering operations, however, I do not think that the particles of the sus-

\* In Poggendorff's Annalen, Vol. 82, p. 419, date unknown but previous to 1854.

† *Traité de la conduite et la distribution des eaux*, par J Dupuit, Paris, 1854 and *Les Fontaines publiques de la ville de Dijon* par Henry Darcy, Paris, 1856, both beautifully illustrated by plates. For inspection of these I have to thank Dr. Tonnerre, Health Officer to the Municipality.



pended mud can be so very fine as those of the water of the Hugli during the rainy season. There are unfortunately no analyses, but as they come from Alpine regions they must be often diluted with much pure water from melted snow.

The whole thickness of the bed of filtering materials is only .8 metre or about 2 feet 8 inches, of which the upper layer is .3 metre or about 12 inches, consisting of very fine sand (*Sable très fin de Montredon*), below which are layers of middling and coarse sand, gravel and broken stones. It is stated that the filters might work more than eight or ten days, but if kept going longer they would be more difficult to clean. This cleaning is effected by passing the water backwards and upwards through the sand, the impure water being carried off from the surface by channels for the purpose. I have to observe that here we have filter beds much thinner than those at Palta, very fine sand and upward charging, all points that have been considered objectionable for the Palta filters. The cleaning by upward charging requires considerable velocity of current and a continuance of it for four or five hours of time. I have calculated from the data given that it would require about 14 or 15 feet of perpendicular height of water, that is, about as much water as one of the filter tanks, emptied of its filtering materials, would hold two and a half times. No account is given as to how it is done, but I concluded that the level of the canal from which the water is supplied to the filters must be sufficiently high for the purpose.\*

I can also bring confirmatory evidence of another kind from English waters, evidence to shew why these waters are not attended with such difficulties in their filtration. There are no circumstances to produce such muddy waters as are to be found even on the European continent, no Alps and glaciers to produce this muddy water even at its source, no mountain snows to melt, and no large falls of rain concentrated in one period. I refer to a paper by Dr. Frankland† on the water supply of the Metropolis during the year 1865-66. In this paper there are several tables of the principal constituents of the water of nine Water Companies for every month of the year. These tables shew that the amount of saline constituents varies during the year, but never to near such an extent as that of the Hugli: they also shew that the earthy salts vary in their amount as indicated by the hardness, but never become reduced to nearly the same degree as those of the Hugli, being at their lowest indeed nearly as much in amount as those of the Hugli in December or January. The variation of course depends upon the rainfall, but this does not vary as respects either quantity or time in the same

\* I have since been informed by Dr. Tonnerre that the level of the canal is high above the town.

† Journ. Chemical Society, 1866, Vol. XIX, p. 239.



way as it does in the valley and the source of the Ganges; in England the rainfall and hardness both rise and fall repeatedly during the year. The case is entirely different from the state of matters here in which we have a very soft water from the commencement of the regular rains gradually becoming harder in November and December and continuing so till the rains set in again in the following year. There is no reason, therefore, to expect any noticeable disturbance in the conditions of filtration in England from change in the condition or nature of the water, but every reason to expect it here, if we can only suppose or admit that such a change in the water may affect the filtration. And I would ask, why we should not admit that it should do so? My experience convinced me that it did so affect the filtration, and though I could not satisfactorily account for it or explain how it did so, I continued firmly to maintain that it did so, that this was the true cause of the difficulties, and that consequently other explanations were fallacious and baseless.

I should have been glad to have found other corroborative evidence of the correctness of my opinions, but had no means of obtaining it. Fortunately the discovery of the nature of the peculiarity rendered this of comparatively small importance. I return now to the consideration of this subject a little more in detail.

IV.—After ascertaining that such a very small quantity of lime salts or rather of chloride of calcium, for that was the salt experimented with at first, was sufficient for the purpose required, I proceeded to compare the efficiency of different neutral salts. For this purpose I had to choose a standard of comparison, and as the enquiry related at present to the Hugli water, I chose it with reference to the composition of this. Chloride of Sodium or common salt might have been taken, but I found its effect comparatively so small that I gave that up. The really influential constituents in the river water were the salts of lime and magnesia, particularly the carbonates, and as I found that these were of nearly equal power, I decided to take that which existed in largest quantity, namely carbonate of lime, as the standard of comparison. But as a solution of carbonate of lime in excess of carbonic acid is troublesome to prepare, its strength somewhat troublesome to ascertain, the solution itself weak, consequently involving the addition of a notable quantity of water, besides being liable to change, I chose for my working standard a solution of chloride of calcium equivalent in strength to 1 grain carbonate of lime in 50 cubic centimetres of solution, equal to 1.11 gm. chloride of calcium in 50 c. c. This formed a convenient strength for measuring by a pipette. For the composition of the water, I assumed that during the rainy season it contained salts of Lime and Magnesia equivalent altogether to 7 grains of carbonate of lime in 100,000 fl. oz. or .07 gramme in 1 litre. This is equal to 4.9 grains in 1 gallon. Perhaps it is rather too



low an estimate, 8 grains or even 9 grains to 100,000 being possibly more correct.

A question soon arose as to what was the general nature of the action, for on that I must regulate the plan on which I was to compare different substances. I have quoted Professor Jevons's electrical theory about the coagulation of clay, which is too speculative for practical application,—also Mr. Skey's, that these precipitating substances must act solely from their affinity for water, because the powerful affinities of the component parts of most of these substances precluded the idea of their decomposition. The general tendency of the experiments I made at first, however, led me to reject this explanation, and to conclude that the action was most probably a chemical one, though it might be difficult, or at present impossible, to explain exactly how it operated. In consequence of this I decided to compare, not absolute weights of the different substances, but their chemical equivalents. Reasons for this conclusion will be given presently.

I generally operated on half a litre of water. This was mixed with the substance to be tried and allowed to stand from 24 to 48 hours. A row of such bottles with different substances was placed on the table with one bottle containing unmixed water, and comparison was made of their respective appearances at the end of a certain time, sometimes of two or three times, and the result noted. Different proportions of the same substance were compared in the same way. The conclusions were drawn only from the experiments made on the same water at the same time, not between different samples of water or between observations made at different times.

The substances compared were chiefly, but not exclusively, those found in natural waters. They may be divided into the following classes:—

Alkalies and alkaline earths.

Acids, or Hydrogen salts.

Neutral salts of the alkalies.

Salts of Lime and Magnesia,—or of alkaline earths generally.

Salts of protoxides of heavy metals, namely of Iron, Manganese and  
[Copper.

Salts of the sesquioxides,—namely of Aluminum and of Iron.

The range might have been considerably extended, and the series have been more complete, but I could not spare the time necessary for a more numerous series; besides, the river water began to improve about the end of August and continued to do so, as the rains ceased early. The experiments, however, were sufficiently numerous to enable me to draw conclusions of interest.

I shall arrange the substances tried in a tabular form, attaching to them numbers indicating the number of chemical equivalents necessary to produce the same effect as Carbonate of Lime in solution in carbonic acid water. The



equivalents will be in relation to the atomic weight of chlorine 35·5; thus,—combined with Sodium 23, Calcium 20, Iron (Ferrosium) 28, (Ferricum) 18·66, forming Sodium Chloride 58·5, Calcium Chloride 55·5, Ferrous Chloride 63·5, Ferric Chloride 54·16, so that equivalents can easily be converted into absolute weights by multiplying by these numbers, and to facilitate this the equivalent numbers are given. The absolute weights are also given in the last column which, it will be observed, are the products of the two first multiplied by 2 to bring them to the standard of Carbonate of Lime taken as 100, the double of its equivalent. The equivalents and absolute weights, also, are all for the substances free from water of combination, crystallization or solution.

*Table of approximate quantities required to produce an equal effect in clarifying the muddy water :—*

	Chemical equivalent.	Number of equivalents.	Absolute weight.
Chloride of Sodium or Common Salt, .....	58·5	40·0	4680
Potassa Hydrate, .....	56·0	5·0	560
Soda Bicarbonate, .....	84·0	4·0	672
Acetic Acid, .....	60·0	3·0	360
Sulphuric Acid, .....	49·0	2·0	196
Calcium Chloride, or Muriate of Lime, ...	55·5	2·0	222
Magnesium Chloride, or Muriate of Magnesia, .....	45·5	2·0	182
Nitric Acid, .....	63·0	1·5	189
Barium Chloride, .....	104·0	1·0	208
Carbonate of Lime, dissolved by Carbonic Acid, .....	50·0	1·0	100
Carbonate of Magnesia, dissolved by Carbonic Acid, .....	42·0	1·0	84
Sulphate of Lime, .....	68·0	1·0	136
Sulphate of Manganese, .....	75·5	·5	75·5
Sulphate of Copper, .....	79·5	·2	31·8
Protosulphate of Iron, .....	76·0	·15	22·8
Protocarbonate of Iron, dissolved by Carbonic Acid, .....	58·0	·15	17·4
Alum, .....	79·2	·05	7·92
Aluminum Chloride, ..	44·8	·05	4·48
Perchloride of Iron, .....	54·7	·025	2·74

Chloride of Potassium or Muriate of Potassa, Sulphate of Potassa, Acetate of Potassa and Phosphate of Soda were about equally efficacious with common salt.



This table shews the very great difference in efficiency between different substances, common salt having only one-fortieth part of the power of the standard Carbonate of Lime when chemical equivalents are compared, or about one-forty-seventh part when actual weights are compared. On the other hand, Perchloride of Iron is forty times as powerful as Carbonate of Lime, chemical equivalents being compared, or about thirty-six times when actual weights are taken.

A glance at the table will shew that the precipitating power is just in proportion to the facility with which the acid and basic constituent of the salt can separate. The alkalies and alkaline earths ought to be excluded as they exert a chemical change in the soluble constituents of the waters, but it appears to me pretty evident that both the acid and basic constituents of the remainder of these substances take part in the effect produced on the clay. Acids themselves do so, as shewn by the table, even so very weak a one as Carbonic acid gas does so when passed for sometime through the muddy water, as I found from direct experiment. And I also found that when using these small quantities of alumina, the addition of a proportion of potash, more or less, to neutralize the acid constituent of the salt was no improvement but the reverse. Pieces of sheet iron, immersed in a bottle of muddy water and shaken occasionally, in a few hours caused the mud to precipitate very well; the iron evidently had been acted on by the Carbonic acid in the water and the atmospheric oxygen to form a small quantity of a salt of iron which produced the effect.

The numbers in the table are by no means to be taken as accurately ascertained. The shortness of the period during which muddy water of nearly similar quality was available rendered this impossible. After the end of August, I employed water from the river mixed in a vessel with the mud deposited from previous water and stirred up, which can scarcely be taken as a very good representative of the water during the worst period of the rains, though probably good enough for the purpose, as the comparisons between different substances were always made with the same water. But as the month of August was chiefly occupied with experiments on the natural constituents of the water, namely alkaline and earthy salts, and those on the effects of the salts of the heavy metals and of the sesquioxides were not made till September when the water had undergone some change, the numbers given for these latter are not quite so certain, possibly may be stated as smaller than they would have been had the August water been used. The decision on this point must be reserved for next rainy season.

It may be well also to state the absolute quantities of these or at least of some of these substances that would be necessary to clarify a given quantity of the muddy water, calculated from the data given. For this purpose the standard will be Carbonate of Lime, dissolved by Carbonic acid, in the



proportion of .07 gramme to 1 litre or 1000 cub. centimetres or 7 pounds to 100,000 pounds of water, which is equal to 700 pounds to 10 million pounds of water or to 1 million gallons. From this the quantity of any other of the substances given in the table may be calculated from the last column by simple proportion. Thus as 100 Carbonate of Lime is to 700 pounds required, so is 136 Sulphate of Lime to 952 pounds required, or 2.74 Perchloride of Iron to 19.18 pounds required for 1 million gallons of the muddy water of the Hugli.

It is necessary to remember, however, that the table given refers to the dry substances, which is the natural condition in which they are usually found in only a few of the substances enumerated in the table, such as Common Salt and Carbonate of Lime. Most of the other substances contain water of crystallization or water of solution, which last may be a very variable quantity. In the latter case the quantity of dry matter in solution must be known. The following table includes a few of the preceding substances most likely to be of practical application:—

*Table of absolute quantities of substances necessary for the clarification of 1 million gallons of muddy water of the Hugli during the rainy season, calculated from the data given above.*

	Pounds.
Common Salt, dry, equiv. 58.5, .....	32,760
Chloride of Calcium or Muriate of Lime, fused or dry, eq. 55.5, ..	1554
Carbonate of Lime, dry, eq. 50, .....	700
Gypsum or native cryst. Sulphate of Lime, eq. 86, .....	1204
Sulphate of Iron cryst., eq. 139, .....	159.6
Alum cryst., eq. 151.2, .....	55.4
Perchloride of Iron, dry, 54.7 .....	19.15

It may be also worth noting the proportion of a few of these substances to the water, on the above data.

Common Salt, .....	1 to 305
Gypsum, .....	1 to 8,306
Carbonate of Lime, .....	1 to 14,286
Perchloride of Iron,* .....	1 to 522,000

These numbers shew that chloride of calcium is nearly twenty-three times as effective as common salt. Skey estimated it as only twice as effective. Schloesing, as will be stated immediately, estimated chloride of potassium as of only one-fifth of the efficacy of lime salts and chloride of sodium

\* On referring to my Note Book I find that in July 1866, I had come to the conclusion that about 1 of Perchloride of Iron is sufficient to precipitate the mud from 125,000 of water by standing over night, an approximation at least to the small quantity I have recently found to be sufficient. This was when I was not thinking of its application on the large scale nor searching for a minimum.



weaker still. It will be observed that my numbers differ widely from theirs. The differences are to be accounted for, partly from the circumstance that my examinations have been pushed further than theirs, thus shewing that one lime salt is twice as efficacious as another, that some other salts are far more powerful than lime salts, and that the salts of the heavy metals and particularly of the sesquioxides seem to act on the same principle, which does not appear to have been suspected by either Skey or Schloesing, at least is not alluded to. It is also probably partly due to the differences of the mud operated on, both as respects the composition of the insoluble matter it chiefly consists of, as well as of the soluble matter that it may contain.

V.—I had written thus far when I had an opportunity of seeing Schloesing's paper in the original, in the *Comptes Rendus*, and found it much more complete and interesting than I could have concluded from the brief abstract in the *Chemical News*. He was first led to notice the peculiarity from a circumstance I have mentioned before, namely the treatment of argillaceous soils with distilled water. He not only mentions that distilled water rendered muddy by a mixture of purified fat clay is precipitated by 1-1,000th part of lime salts immediately, but that this is the case also by 1-5,000th part in some minutes and by 1-50,000th part in two or three days. He refers to the muddy water of the Seine becoming limpid in an hour or two by a very small addition of a lime salt, but at the same time states that the Seine water contains 89 milligrammes of lime per litre, equal to 8.9 parts in 100,000 or 15.9 of Carbonate of Lime, a much larger quantity than that which exists in the Hugli water during the rainy season, indeed nearly as much as is found in December and January. Schloesing further directs attention to the influence of this peculiarity on clay soils and on what is called the mechanical analysis of soils; and he further notices the precipitation of mud so carried in rivers by the water of the sea, and also the practical applications suggested by it for clearing muddy water. Indeed he concludes by a reference to the waters of the Durance employed for supplying Marseilles, tracing the muddiness of such waters to their sudden dilution with large quantities of pure water and suggesting a remedy in the restoration of the water to its normal condition by the addition of lime salts or an admixture of some other water containing abundance of these; in complete accordance with all I have been contending for. Schloesing states that Magnesia salts are about equally efficacious with Lime salts, and that salts of Potash are required in about five times the quantity that lime salts are, and that soda salts are still less active. He refers to no other classes of salts, but speaks of Carbonic acid as producing the same effect, attributing its efficacy to the solution of Carbonate of Lime present in the insoluble state.

This idea had occurred to myself, and that also it might explain the



action of the other stronger acids. I am not prepared at present either to admit or deny this. To settle the point would require experiments to be made in which the sources or causes of doubt should be removed. Though it might be supposed that these acids dissolve a small quantity of the otherwise insoluble carbonate of lime, this does not account satisfactorily for the circumstance that the salts of the sesquioxides of aluminum and iron and even of the protoxides of the heavy metals are so much more efficient than lime salts themselves.

I found in another number of the Chemical News, that of 14th May, 1869, an abstract of a "Report of the Netherlands Committee." This committee, evidently, (though particulars are not stated), consisted of a body of scientific men examining the waters of certain rivers with a view to their economical use, the Rhine and Maas being particularly mentioned. So far as I can judge from some particulars mentioned, these waters do not appear to be exactly similar to the muddy water of the Hugli. The committee especially recommend Perchloride of Iron for the purification of such turbid waters, along with Carbonate of Soda, and recommend .032 grains Perchloride of Iron for 1 litre which is equal to 1 part for 31,250. I have given it as 1 to 522,000 and without soda. It is obvious that the question of quantity is very important in the application of this artificial method of clarifying muddy water with a view to economy. The great expense, evident in the application of all proportions known before, was one cause that prevented me from giving the subject much attention, as I had adverted to the use of precipitants as far back as 1867, in my paper in this Journal.\*

One way and the best of all ways of restoring the proper quantity of Lime salts to such water would be to bring it thoroughly in contact with Carbonate of Lime, provided it contained enough of free Carbonic acid to dissolve a sufficient quantity. But this is very doubtful and not very likely in ordinary waters. Experiment shewed only a small improvement.

Both Skey and Schloesing state that the chief point seems to be that there should be a certain quantity of the precipitating substance in proportion to the water, and that the quantity of clay present does not make much difference, Schloesing remarking even that the limpidity is more perfect when the mud attains a certain proportion, just as I have myself found that the muddy Hugli water settled and cleared better by adding some dry soil to it, this of course from the soluble matters contained in that soil. The general point, however, I had not time to examine, my attention having been given to the Hugli water as it presented itself in nature.

Both Skey and Schloesing also describe the effect produced by the term coagulation, and it seems quite appropriate. The very fine particles coalesce as it were into larger and comparatively flocculent ones.

\* Vol. XXXVI, Part II, p. 138.



I was not content with these small experiments but tried the process by clarifying the water first by such small proportions of these precipitants, settling one or two days and then passing through a sand filter, and found it to answer perfectly, the filtration going on easily and rapidly. The apparatus was small, the precipitating vessel holding about 45 gallons, the filter being a Zinc tube of about six inches diameter. There were two filters, one with Palta and one with Magra sand: the Palta sand filtered best as I used as small a quantity as possible of the precipitating substances. I could not try it on a larger scale, as my premises are now no longer on the bank of the river. But there cannot in my opinion be the smallest doubt but that the process would answer admirably on the large scale.

My former experiments, at least in my own judgment, proved that the Hugli water during the rainy season could not be filtered without unusual difficulty, and that arising from a peculiarity in the water which I connected with the peculiar distribution of the rainfall in this country, though I could not then explain the cause:—it was a matter of fact whether it could be explained or not. Plans proposed to overcome this difficulty, supported by experience of water filtration in England, I declared would be useless, because the water was different and English experience therefore not applicable.

One special contrivance, which it was alleged would be effective for the purpose, I had tried, and had given my opinion that it was worthless for the purpose. The best plan for filtering the water of the rainy season as it presents itself in nature, I concluded, would be by the use of the Palta sand, properly managed, which includes a proper relation between the amount of filtering surface and the quantity of water to be filtered. All of these statements and opinions I still adhere to, as they were conclusions drawn from the observation of facts, the highest and only true authority from which scientific conclusions can be drawn.

A new idea has supplied me with the means of explaining the nature of the peculiarity, and that not by superseding but by confirming the correctness of my previous conclusions that it was connected with the tropical rainfall, and that was by producing extreme dilution of the water. It also indicated a way to remedy the difficulty of settling and filtering the water. The evidence has been given in the preceding pages, and is founded also on the authority of experimental facts open to scrutiny and criticism. The conclusions, it appears to me, may be of value not only with reference to the Calcutta water supply, but to the purification of water in cases where the circumstances are similar, occurring more generally in tropical countries, but even occasionally in other localities.



## NEW BURMESE PLANTS, PART III.—By S. KURZ, Esq.

[Received Dec. 5th.]

[With Plates XVIII &amp; XIX.]

## CAPPARIDÆ.

## 227. CAPPARIS CRASSIFOLIA, nov. sp.

Frutex scandens, spinis brevibus recurvatis armatus, novellis et foliis junioribus subtus tomento minuto canescente obtectis; folia obovalia ad obovata, petiolo  $\frac{1}{2}$ — $\frac{3}{4}$  poll. dum juvenili canescenti-puberulo suffulta, basi magis minusve acuta, apice rotundata et brevissime recurvato-acuta, coriacea c. 2 pollicaria, glabra, nervis crassis subtus conspicuis, et præsertim basin versus egredientibus; flores solitarii, iis *C. horridæ* subconformes, pedicello  $\frac{1}{2}$  ad  $\frac{3}{4}$  poll. canescenti-tomentoso suffulti; sepala et petala ferrugineo-lanata; filamenta numerosa, glabra; gynophorum longum et ovarium globosum glabra.—Prome.—*C. horridæ* arcte affinis.

## 228. CAPPARIS POLYMORPHA, nov. sp.

Frutex scandens, glauco-viridis, ramis ramulisque tenuiter albescenti-farinoso-tomentosis, spinis brevibus curvis puberulis armatus; folia (juniora valde elongato-rhomboidea) rhomboideo-ovata ad obovato-rhomboidea, petiolo  $\frac{1}{2}$  poll. albescenti-puberulo suffulta, basi obtusa, subcoriacea, obtusa, glauca, subtus et dum juvenilia utrinque, fugaci-albo-puberula, nervis crassis et præsertim basin versus egredientibus; flores solitarii, axillares, iis *C. horridæ* simillimi, pedicello  $\frac{1}{2}$ — $\frac{3}{4}$  poll. canescenti- et pro parte ferrugineo-tomentoso crasso suffulti; sepala et petala ferrugineo-lanata; filamenta numerosa, glabra; gynophorum gracile, glabrum; ovarium glabrum; baccæ (immaturæ) cerasi magnitudine, oblongæ, læves, polyspermæ.—Prome.—Ex affinitate *C. horridæ*. *C. horrida*, *crassifolia* et *polymorpha*, species inter se valde affines, habitu longe distant et sæpius in eodem solo sociatim crescunt.

## MALVACEÆ.

## 229. DECASCHISTIA CRASSIUSCULA, nov. sp.

Frutex humilis, ramosus, dense albido-tomentosus; folia ovata, in petiolo crasso 2—3 lin. tantum longo decurrentia, 2—3 poll. longa, integra v. sublobata, grosse v. obsolete dentata, utrinque dense, subtus albo-tomentosa; flores sessiles v. subsessiles, 2 poll. fere longi; involucri phylla dense tomentosa, basi bractea longa subulata sustenta; calycis lobi paulum longiores et latiores, tomentosi, crasso-costati; petala stellato-pubescentia, venosa; capsulæ dense tomentosæ.—Prome.—*D. crotonifoliæ* valde affinis, sed differt floribus sessilibus v. subsessilibus, foliis latioribus decurrentibus et petiolo brevissimo.



*STERCULIACEÆ.*230 *STERCULIA ORNATA*, Wall ap. Voigt. Cat. Hort. Calc. 105.

Arbor decidua, novellis pilis coccineis (in sicco brunneis) sæpius glutinosis tomentosis; liber et lignum album (nec rubrum uti in *St. villosa*); folia lata, 5—7-loba, lobis acuminatis, subtus dense stellato-pubescentia, supra pilis brevibus fasciculatis minutis aspersa; flores majusculi, pedicello  $\frac{1}{2}$ —1 poll. longo suffulti, plerumque ochracei in fundo rubicundi, in paniculas terminales coccineo-tomentosas dispositi; calyx puberulus, semilineam longus, lobis lanceolatis patentibus; gynophorum stellato-tomentosum; ovaria fl. fem. dense hispido-tomentosa; carpella 5—6, setis fragilibus lineam fere longis urentibus dense vestita et glabrescentia, c.  $2\frac{1}{2}$ —3 poll. longa, subcylindrico-lanceolata, incurvato-acuminata, intus dense fulvo-setosa; semina plura, oblonga, atra, lævia.—Pegu, Martaban, Tenasserim.—*St. villosæ* affinis, inter alia indumento carpellorum et floribus jam distincta.

*MALPIGHIACEÆ.*231. *HIPTAGE ARBOREA*, n. sp.

Arbor parva, decidua, 15—20-pedalis, novellis dense albido v. flavido-tomentosis; folia valde variabilia, oblonga et ovato-oblonga ad elliptica et elliptico-lanceolata, 2— $3\frac{1}{2}$  poll. longa, petiolo brevissimo crasso, basi obtusa v. rotundata, subcoriacea, dum juniora dense albido-tomentosa et acuta v. breviter acuminata, dein subfloccosa et apiculata v. rotundata, nervis subtus valde prominentibus; flores lilacini v. albi, in fundo aurei, pedicello medio 1—2-bracteolato longo albido-pubescente basi bracteato suffulti, racemos breviores v. longiores albido-pubescentes axillares formantes; sepala obtusa v. acuta, lanato-pubescentia, 2—3 lin. longa; petala unguiculata, fimbriata, reflexa; carpella magis minusve fulvo-tomentella, glabrescentia, alis plerumque securiformi-emarginatis valde inaequalibus (terminali erecta  $1\frac{1}{2}$ —2 poll. longa, lateralibus patentibus plus quam  $\frac{2}{3}$  brevioribus), costa centrali obsoleta.—Prome, Martaban.—Inter species *Hiptagis* generis extricatu difficillimas hæc statura erecta (non scandente) et cortice crassa suberoso-fissa præstat.

*RUTACEÆ.*

GONOCITRUS, nov. g., Pl. XVIII.

Flores 5-meri (an semper?). Stamina.....Ovarium 3—5-gonum, 3—5-loculare, loculis 2-ovulatis. Bacca coriacea, epulposa, 3—4 angulata. Semina magna, cotyledones carnosæ. Arbuscula spinoso-armata in solo salino rhizophoretorum vicens, foliis simplicibus alternis. Flores solitarii, axillares. Genus distinctissimum sed incomplete cognitum, *Atalantiæ* affine.

232. *G. ANGULATUS* (*Citrus angulatus*, Willd. sp. pl. III. 1426; Rumph. Herb. Amb. 110, t. 32; DC. Prod. I. 540; *Atalantia longispina*



Kurz in Journ. As. Soc. Bengal, 1872 295). Baccæ epulposæ, sed intus succo viscido parco (oleo condensato ?) vestitæ. Flores albidî (ex Rumph.).

### LEGUMINOSÆ.

#### 233. CROTALARIA KURZII, Baker MS.

Herba annua, erecta, ramosa, 1—3-pedalis, ramis teretibus parce appresse pubescentibus; folia obovato-ad lato-lanceolata, basi subcuneata, brevissime (1—2 lin.) petiolata, mucronato-acuta v. subcuspidata,  $1\frac{1}{2}$ —3 poll. longa, raro longiora, subtus parce puberula et pallida; flores mediocres, lutei, vexillo extus atropurpureo-striato, pedicello  $\frac{1}{4}$ — $\frac{1}{2}$  poll. pubescente suffulti, vulgo solitarii v. raro bini, hinc inde fasciculatim ex foliorum axillis erumpentes simulque in racemos axillares et terminales parce pubescentes dispositi; bracteæ minutæ, subulatæ; calyx semilineam circiter longus, parce appresse puberulus, lobis falcato-lanceolatis acuminatis; corolla calyce longior; legumen  $\frac{3}{4}$  ad  $1\frac{1}{2}$  poll. longum, sessile, basi attenuatum, glabrum; semina pallida v. pallide brunnea, nitentia, lin. lata. Var.  $\alpha$ . genuina, folia minora, 4 poll. non excedentia; legumen  $\frac{3}{4}$ —1 poll. tantum longum et calyce duplo longius; semina pallida, lineam lata.—Pegu, Martaban.—Var.  $\beta$ . luxurians, folia 6 poll. longa; legumen  $1\frac{1}{2}$ —2 poll. longum et calyce 3—4 plo longius; semina brunnea,  $2\frac{1}{2}$  lin. circiter lata. Pegu. Var.  $\beta$ , cujus flores non vidi, cum forma typica, characteribus supra indicatis exceptis, omnino quadrat.

#### 234. INDIGOFERA CALONEURA, nov. sp.

Frutex erectus, ramosus, fulvo-puberulus; stipulæ c. 2 lin. longæ, lineari-subulatæ, dense pubescentes; folia 1-foliolata, petiolo 3—4 lin. longo crasso dense fulvo-pubescente suffulta; foliolum ellipticum, utrinque rotundatum v. sæpius apice retusum, mucronulatum, 3—4 lin. longum, chartaceum, supra glabrum, subtus molli-pubescent et glaucescens, costa nervis venisque valde prominentibus et fulvo-pubescentibus; flores rosei?, parviusculi, pedicello 2 lin. longo filiformi puberulo suffulti et, racemum robustum pubescentem axillarem foliis vulgo brevioribus formantes; bracteæ longiusculæ, subulatæ; calyx brevis sed amplus; lineam vix altus, dentibus 3-angularibus acutis; corolla c.  $\frac{1}{2}$  poll. longa; ovarium dense sericeo-pubescent; legumen deest.—Pegu.—Ex affinitate *J. Brunonianæ*, Grah.

#### 235. DESMODIUM OBCORDATUM (*Uraria obcordata*, Miq. Suppl. Fl. Sumatr. 114 et 305).

Herba perennis, volubilis, 3—4-pedalis, puberulus; stipulæ lanceolatæ, acuminatæ, pubescentes, c. 3 lin. longæ; folia pinnatim 3-foliolata, petiolo  $\frac{1}{2}$ —1 pollicari puberulo; foliola lateralia minora, deltoidea, retusa et mucronato-apiculata, foliolum terminale transverse obcordato-lunatum,  $\frac{1}{4}$ —2 poll. latum, in sinu mucronatum, chartaceum, supra tenuissime subtus parce pilosum et pallidum, venis transversis prominentibus; flores parvi, cyaneo-



purpurei, pedicello gracili 2—3 lin. longo pubescente, in racemum gracilem pubescentem axillarem sæpius in paniculam terminalem abeuntem dispositi; bracteæ lineares, subulato-acuminatæ, 2—3 lin. longæ, pubescentes, caducissimæ; calyx pubescens, lineam circiter longus, lobis lanceolatis acuminatis; corolla  $2\frac{1}{2}$  lin. longa; legumen in stipitem 1 lin. longum attenuatum, recurvatum, planum, chartaceum, puberulum, moniliformi-2—3, v. sæpius 1-articulatum; articuli hastato-rotundati, c.  $\frac{1}{3}$  poll. longi et lati; semina reniformi-oblonga, compressa, brunnea, nitentia.—Tenasserim.—Ex affinitate *D. strangulati*, &c.

236. *DESMODIUM OBLATUM*, Baker MS. (*Desmodium reniforme*, Wall. Cat. vix De. certissime non Burm).

Fruticulus erectus, gracilis, 2—3-pedalis, glaber; stipulæ et stipellæ minutæ; folia 1-foliolata, petiolo capillari  $\frac{1}{2}$ — $\frac{1}{2}$  pollicari suffulta; foliolum transverse ellipticum, apice subsinuatum v. rotundatum, 1— $1\frac{1}{2}$  poll. latum, integrum, glabrum, læte virens; flores parviusculi, cyanei, pedicello capillari c.  $\frac{1}{3}$  pollicari puberulo, fasciculati et racemum gracillimum puberulum axillarem in paniculam terminalem abeuntem formantes; bracteæ persistentes, ovatæ; calyx c.  $1\frac{1}{2}$  lin. longus, subglaber, lobis lineari-lanceolatis acuminatis; corolla sub—3 lin. longa; legumina in stipitem brevissimum contracta, compressa, minute puberula et glabrescentia, lineari-oblonga, moniliformia, 2—4 passim 1-articulata, articuli semiorbiculares, suturâ exteriori vix curvâ, reticulati, c. 2 lin. longi v. longiores; semina compressa reniformia pallide brunnea nitentia.—Ava, Pegu, Martaban.—Ex affinitate *D. reniformis*, &c.

237. *DESMODIUM AURICOMUM*, Grah. in Wall. Cat. 5704.

Herba annua a basi ramosa patenter fulvo-pilosa; stipulæ lanceolatæ, aristato-acuminatæ, striatæ, 2— $2\frac{1}{2}$  lin. longæ; folia pinnatim 3-foliolata, petiolo parce piloso 3—4 lineari suffulta; foliola elliptica ad obovalia, rotundata v. subretusa,  $\frac{1}{4}$ — $\frac{2}{3}$  poll. longa, supra subglabra, subtus parce appresse pilosa; flores parvi purpurei, pedicello capillari piloso  $\frac{1}{2}$ — $\frac{1}{3}$  pollicari, racemum gracilem patenti-fulvo-pilosum terminalem v. ramulos axillares terminantem formantes; bracteæ vulgo sub anthesi persistentes, ovatæ, subulato-acuminatæ, 3—4 lin. longæ, fulvo-pilosæ; calyx  $1\frac{1}{2}$  lin. longus, fulvo-pilosus, lobis linearibus subulatis; corolla æquilonga v. paulo longior; legumina plana, sessilia, lineari-oblonga, ciliata et intra marginem villosa-pilosa, laxè reticulata, 3—5-articulata, articuli lin. circiter longi et lati, suturâ interiori rotundati exteriori subrecti, dehiscentes; semina reniformia, brunnea, nitentia.—Arracan, Tenasserim.—Ex affinitate *D. triflori*, &c.

238. *LESPEDeza PINETORUM*, nov. sp.

Frutex subsimplex v. ramosus, robustus erectus 2—4-pedalis dense fulvo-piloso-pubescent; folia 3-foliolata, petiolo  $\frac{1}{2}$ — $\frac{2}{3}$  pollicari villosa suffulta; foliola elliptica ad elliptico-ovata, brevissime crasseque petiolata, 1—2



poll. longa, obtusa v. acuta cum mucrone, integra, coriacea, supra subrugosa et parce subtus dense fulvescenti- v. subcanescenti-villosa et prominenter nervosa; flores parviusculi, cyanei v. rosei, pedicello lin. longo gracili pubescente suffulti in racemos villosos-pubescentes robustos sed breviusculos axillares v. terminales dispositi et sæpius paniculam densam terminalem efformantes; calyx c.  $2\frac{1}{2}$  lin. longus, fulvescenti-villosus, lobis subulatis; corolla  $3\frac{1}{2}$  lin. longa, glabra; legumen dimidiato-ovatum, 3 lin. longum, sericeo-pubescent. — Martaban. — *L. hirtæ*, Miq. quodammodo affinis.

239. *LESPEDEZA DECORA*, nov. sp.

Frutex erectus, 3—5-pedalis, caulibus angularibus appresse fulvo-pubescentibus dein canescentibus; stipulæ c. 3 lin. longæ, rigidæ, lineari-subulatæ; folia pinnatim 3-foliolata, petiolo gracili  $1-1\frac{1}{2}$  pollicari canescente suffulta; foliola breviter petiolulata, obovalia ad elliptica, apice rotundata mucronata, chartacea,  $1-1\frac{1}{2}$  poll. longa, supra atroviridia, glabra, subtus glaucescentia et sub lente appresse pubescentia; flores cærulei, pedicello gracili c.  $\frac{1}{2}$  pollicari glanduloso-pubescente instructi, racemos breves at graciles fulvo-glanduloso-pubescentes persistenter bracteatos sæpius in paniculam brevem collectos efficientes; bracteæ ovato-lanceolatæ, subulato-acuminatæ, c. lin. longæ, glanduloso-puberulæ; calyx c. 3 lin. longus, fulvo-pubescent, lobis ovatis acuminatis; corolla  $\frac{1}{2}$  poll. longa; legumina (immatura) oblique ovato-lanceolata, acuminata, compressa, breviter sericea. — Martaban. — Hic *Desmodium angulatum*, Wall. Cat. 5729, I. quoad specimina sterilia probabiliter e Taong-dong sumpta.

240. *LESPEDEZA PARVIFLORA*, nov. sp.

Frutex, ramulis angularibus sericeo-puberulis; stipulæ rigidæ, lineari-subulatæ, c.  $2-2\frac{1}{2}$  lin. longæ; folia pinnatim 3-foliolata, petiolo gracili canescente  $\frac{1}{2}$  poll. longo suffulta; foliola breviter petiolulata, elliptica ad elliptico-ovata,  $\frac{1}{2}-1$  poll. longa, chartacea, supra glabra et atroviridia, subtus glaucescentia et appresse puberula; flores cyanei?, parvi, pedicello  $\frac{1}{2}-1$  lin. longo fulvo-pubescenti instructi et in racemos axillares strictos fulvo-pubescentes folio circiter duplo longiores apice ramorum sæpius congregatos dispositi; bracteæ deciduæ; calyx dense fulvo-pubescent, c. 2 lin. longus lobis subulatis; corolla  $3\frac{1}{2}$  lin. circiter longa; legumina (immatura) oblique ovata, acuminata, sericea. — Martaban (Rev. F. Mason). — *L. ellipticæ*, Bth affinis, a qua differt: floribus multo minoribus, calycis lobis subulatis, bracteis deciduis et indumento.

241. *MUCUNA BRACTEATA*, Dc. (*Carpopogon bracteatus*, Roxb. MS. Jc, XX. t. 138).

Herba perennis, volubilis, novellis parce appresse pubescentibus; stipulæ...; folia pinnatim 3-foliolata, petiolo glabro v. subglabro  $2-4$  pollicari suffulta; foliola ovata v. subovata (lateralibus valde obliquis, terminali magis trapezoideo), petiolulo brevi pubescenti suffulta, obtusiuscule apiculata v.



cuspidata, mucronata, chartacea, supra glabra, subtus puberula v. sub lente appresse pubera; flores magni, atropurpurei, pedicello canescenti-puberulo c. 2 lin. longo suffulti, 2—3-ni v. solitarii pedunculum secundarium 2—3 lin. longum terminantes et in racemum bracteato-pedunculatum axillarem nutantem canescenti- v. fulvescenti-pubescentem dispositi; bractea ovata ad lanceolata, subulato-acuminata, velutina, florales valde deciduae, inferiores vacuae pedunculum vestientes persistentes, majores,  $\frac{1}{2}$ — $\frac{3}{4}$  poll. longae; bracteolae paulo minores, rotundatae, deciduae; calyx amplus, c. 4—5 lin. in diametro, dense canescenti-puberulus et setis fragilibus fulvescentibus aspersus; corolla c.  $1\frac{1}{2}$  poll. longa, alae subduplo, carina vexillo subtriplo longiores; legumina oblonga v. suboblonga, compressa, 1— $2\frac{1}{2}$  poli. longa, carinis longitudinalibus secus suturam superiorem destituta densissime urenti-setosa, 2—5 sperma; semina transverse oblonga, vulgo brunneo et atromaculata.—*Pegu, Martaban, Ava.*—Species distinctissima, *M. prurienti* affinis.

242. GRONA FILICAULIS, nov. sp.

Volubilis, tenera; folia lato cordato-ovata, petiolo pubescente  $\frac{1}{2}$ — $\frac{3}{4}$  pollicari suffulta, obtusa, mucronata, 1— $1\frac{1}{2}$  poll. lata, utrinque sparse hirsuta, palmati nervia; flores parvi, flavi, pedicellati, cirrhoso-pedunculati, axillares; legumina tenera, glaberrima, linearia, poll. circiter longa, 5—6-sperma; semina nitentia, olivacea, nigro-maculata.—*Pegu.*—*G. Grahamii*, Bth. affinis.

243. PUERARIA BRACHYCARPA, nov. sp.

A. *P. ferruginea* (*Amphicarpea ferruginea*, Bth. in Pl. Jungh. I.) differt: omnibus partibus glabrior, leguminibus torosis appresse pubescentibus sub-glabrescentibus pollicem vix excedentibus 3 lin. fere latis 5—6-spermis.—*Pegu.*

ROSACEÆ.

*Pyrus Karensium* Kurz, in Journ. A. S. Bengal, 1872, 306, eadem est ac *P. granulosa*, Bertoloni Piante nuove Asiatiche 10, t. 3, (sub nom. *P. granulata*) in memorie dell' Accademia d. scienze dell' istituto di Bologna, Ser. II, Vol. IV. 1864-65. Planta Khasyana cl. Bertolonii valde est serratifolia, sed formæ intermediæ etiam in Herbario Horti Calcuttensis adsunt. Species fere omnes Indicae a cl. Hookero et Thomsonio collectæ et in opusculo hic citato descriptæ et iconibus illustratæ inaptè propositæ sunt.

MYRTACEÆ.

244. EUGENIA PACHYPHYLLA, nov. sp.

Arbor glabra, ramulis albis; folia obovata ad obovato-oblonga, basi magis minusve cuneato-acuminata, petiolo crasso 3—4 lin. longo suffulta, obtusiuscula v. obtusiuscule apiculata, 3—4 poll. longa, crasse coriacea, glabra, in sicco fuscèscientia, nervis lateralibus tenuibus et prominentibus





satis distantibus et subirregulari-parallelis; flores mediocres, vulgo solitarii v. terni, sessiles paniculam brevissimam crassam trichotomam terminalem efformantes, pedunculo et ramis brevissimis ( $\frac{1}{4}$ — $\frac{1}{2}$  poll.) crassissimis 4-gonis articuliformibus; calyx c. 4 lin. longus, obconicus, basi attenuatus, lævis, limbo 4-lobo, lobis rotundatis c. 2 lin. longis persistentibus; petala, etc. desunt.—Tenasserim (Dr Brandis).—Ex affinitate *E. grandis*.

245. *EUGENIA CERASIFLORA*, nov. sp.

Arbor magna, 90-100 pedalis, glabra, ramulis albidis compressiusculis; folia magis minusve lato-lanceolata, basi acuta v. acuminata, petiolo  $\frac{1}{2}$ — $\frac{3}{4}$  poll. longo, obtusiuscule acuminata v. passim obtuse apiculata, 4—7 poll. longa, pergamentacea, glabra, opaca, subtus pallida, nervis lateralibus sat irregulari-parallelis et sæpius curvis tenacibus sed prominentibus; flores parviusculi, albi, pedicello gracili 2—4 lin. longo suffulti, in racemum brevem gracilem glabrum axillarem v. supra foliorum delapsorum cicatricibus orientem collecti; calyx  $3\frac{1}{2}$ —5 lin. longus, ejus pars superior ampliatus c. 3 lin. longa, clavato-turbinatus, lævis, limbo persistente 4-lobo, lobis semiorbicularibus 2 lin. fere longis, pars inferior pedicelliformi-contracta gracilis  $\frac{1}{2}$ —2 lin. longa; petala c.  $\frac{1}{2}$  poll. longa, concavo-orbicularia, libera; filamenta longa, gracilia; baccæ globosæ v. didymo-globosæ, pisi magnitudinis, in stipitem longum gracilem protractæ, 1—2 spermæ, læves, calycis limbo disciformi patente coronatæ.—Martaban (Etiam in montibus Sikkim Himalaya, Khasya, etc. Species juxta *E. lanceæfoliam* inserenda.

246. *EUGENIA TRISTIS*, nov. sp.

Arbor glabra, ramulis teretibus crassis pallide brunneis; folia elliptica ad elliptico-obovata, basi acuta, petiolo  $\frac{1}{2}$ — $\frac{3}{4}$  poll. longo crasso, obtuse-apiculata, coriacea, 4—5 poll. longa, glabra, opaca, nervis lateralibus subdistantibus et sat irregularibus crassiusculis et prominentibus; flores....; panicula fructicans corymbiformis, sessilis, terminalis, glabra, ramificationibus brevibus et robustis; baccæ pedunculo crasso 1—2 lin. longo suffultæ, depresso-globosæ, cerasi magnitudinis, glabræ, calycis limbo discoideo patenter 4-lobo coronatæ, 2 v. 1 spermæ, endocarpio tenui carnosio; calycis lobi sub fructu c.  $1\frac{1}{2}$  lin. longi, rotundata.—Tenasserim. Ex affinitate *E. grandis*, sed foliorum indole longe distat.

247. *BARRINGTONIA AUGUSTA* (*Stravadium augustum*, Wall. Cat. 2637 pp.)

Arbor mediocris glabra; folia cuneato-oblonga ad obovato-cuneata, basi attenuata obtusa v. acuta, petiolo crasso 3—4 lin. longo, acuta v. subacuneata,  $\frac{1}{2}$ — $1\frac{1}{4}$  ped. longa, sursum crenulato-serrata, chartacea, glabra; flores conspicui, sessiles, in spicam longissimam fulvo-pulverulentam terminalem dispositi; rachis crassa basi foliis numerosis reductis lanceolatis cincta; calyx velutinus, tubo c. lin. longo v. longiore alatum 4-gono, lobis rotundatis c. 2 lin. longis; petala....; baccæ (immatursæ) fibroso-carnosæ,



oblongæ, fulvo-pulverulentæ, calycis limbo coronatæ, 4-alatæ, alis carnosis et crassis angustis undulatis.—Tchasserim.

248. *BARRINGTONIA PTEROCARPA*, nov. sp.

Arbor mediocris, 30—50-pedalis, glabra; folia elongato-obovato-lanceolata, basi cuneato-acuminata in petiolum brevior v. longior (usque  $\frac{1}{2}$  poll. longum) decurrentia, breviter acuminata. 1—1 $\frac{1}{4}$  ped. longa, apicem versus crenulato-serrata, pergamacea, glabra; flores conspicii, albi v. rosei (filamentis albis), sessiles, spicam longissimam robustam pulverulentam terminalem efficientes, rachis crassa basi foliis floralibus reductis numerosis lanceolatis cincta; calyx velutinus, tubo lineam circiter longo alatum 4-angulato, limbo 4-fido, lobis triangulari-ovatis acutis v. obtusiusculis plus quam 3 lin. longis; petala  $\frac{3}{4}$  poll. longa, ovato-oblonga, acuta; baccæ oblongæ, fibroso-carnosæ, c. 2 poll. longæ, 4-gonæ, angulis anguste et crasse alatis.—Pegu, Martaban.—*B. augustæ* valde affinis sed differt foliis longe decurrentibus et calycis lobis.

*LYTHRARIÆ.*

249. *LAGERSTRÆMIA MACROCARPA*, Wall. Cat. 2114; Voigt. Hort. Calc. 132.

Arbor parva v. mediocris 30—40-pedalis decidua, glabra; folia oblonga ad ovato-oblonga, breviter petiolata, vulgo larga præsertim juniora usque 1 $\frac{1}{2}$  ped. longa, adulta 5—6—9 poll. longa, basi obtusa v. rotundata, chartacea, obtusa, obtusiuscule apiculata v. passim acuminata, integra, glabra; flores magni, 3—4 poll. in diametro, speciosi, violacei v. violaceo-purpurei, pedicello crassiusculo canescenti-pulverulento suffulti, solitarii v. 2-ni—3-ni cymosi et in paniculam depauperatam terminalem breviusculam collecti; calycis alabastrum oblongo-turbinatum, canescenti-velutinum, tenui-sulcatum nec costatum, lobis lanceolatis acutis secus margines haud incrassatis; petala 1—1 $\frac{1}{2}$  poll. longa, lato-elliptica v. suborbicularia, unguiculata, crispato-undulata; stamina æquilonga; capsulæ lignosæ, 1—1 $\frac{1}{2}$  poll. longæ, oblongæ mucronatæ; semina *L. Flos reginæ*, sed majora.—Birmania tota.—*L. Flos reginæ* valde affinis.

250. *LAGERSTRÆMIA VILLOSA*, Wall. MS. in H. B. C.

Arbor magna, 80—90-pedalis, in locis siccioribus 40—50-pedalis, ramulis, &c. dense puberulis; folia ovata ad ovato-oblonga, petiolo brevissimo pubescente suffulta, basi rotundata, chartacea, magis minusve acuminata 2—4 poll. longa, supra minute velutina, subtus subcanescenti-pubescentia v. puberula; flores parvi, albi, pedicello gracili pubescente, in cymas pedunculatas dispositi et paniculam terminalem contractam molliter puberulam efformantes; calyx in alabastro turbinatus, dense canescenti-puberulus, 4—5—6-lobus, lobis triangularibus acutis, tubum 4—6-costatum longitudine fere æquantibus, costis subaliformibus; petala minuta, calycis



dentes haud superantia; cuneato-lanceolata, acuta, alba; antheræ purpureæ; capsulae oblongæ, semipollicem circiter longæ, mucronulatæ, valvatim 4—6-loculares.—Regu, Martaban.

### GENTIANEÆ.

#### 251. GENTIANA NUDICAULIS, nov. sp.

Herba erecta annua glabra cauli tereti nudo 1—2 pollicari; foliâ apice rosulata, lineari-lanceolata ad linearia, basi subattenuata sessilia acuta v. acuminata, usque ad  $1\frac{1}{2}$  poll. longa, coriacea, 3-nervia (nervis supra impressis); flores cyanei, raro pallide coerulei, depauperato-cymosi et foliosopedunculati v. (in spp. Burmanicis) in glomeros densos axillares et terminales congregati; calyx  $\frac{1}{2}$  poll. longus, infundibuliformis, plicato-5-angulatus, usque ad medium 5-lobus, lobis lineari-subulatis albo-marginatis; corolla semipollicaris v. paulum longior, plicato-5-loba, lobis acutis v. acuminatis; stamina corollam longitudine subæquantes; filamenta stricta, sub medio corollæ tubi inserta; ovarium lineare, in stipitem brevem attenuatum; capsula clavata, crasse et breviter stipitata, a medio ala sursum latissima cincta stylis 2 revolutis coronata; semina minuta, exalata, oblonga. Var. *a.* genuina, ramuli evoluti et florentes paniculam spuriam efformantes; var. *β.* compacta, ramuli suppressi indeque flores compacto-glomerati.—var. *a.* montes Assamiæ (Griff. No. 5819); var. *β.* Martaban.

#### 252. GENTIANA CRASSA, nov. sp.

Suffrutex ramosus deorsum defoliatus; folia lanceolata ad obovato-lanceolata, basi attenuata et cum folio opposito in vaginam brevem connata, inferiora  $1\frac{1}{2}$ —2 pollicaria, coriacea, obtusiuscule acuminata, 3-nervia, secus margines subrevolutos subcrenulata; flores majusculi, sessiles et glomerati et cymam terminalem majorem v. minorem foliatam compactam formantes; calyx fere  $\frac{3}{4}$  poll. longus, tubuloso-campanulatus, teres, profunde 5-lobus, lobis valde inæqualibus, quorum 3 minimis lineari-lanceolatis e basi truncata abrupte emissis, cæteris 2 subfoliaceis tubi fere longitudinis oblongis acuminatis basi attenuatis 1-nerviis; corolla pollicaris, infundibuliformi-campanulatus, plicato-5-lobus, lobis lato-ovatis, abrupte acuminatis; stamina corolla breviora, filamentis basin versus sensim latioribus tubo basin versus insertis; ovarium lineari-lanceolatum, in stipitem crassum attenuatum; capsula compresso-lanceolata, acuminata, e corollâ marcescente semi-exserta, stipite plusquam  $\frac{1}{2}$  poll. longo suffulta, valvis stylo brevi revolutis terminatis.—Martaban.

#### PHYLLOCYCLUS, nov. g.

Calyx campanulatus, inflatus teres. Corolla subregularis, lobis imbricatis, basi sæpius bimaculatis. Stamina 4, 2 inferiora longiora fertilia exserta polline miniato scatentia, 2 superiora subinclusa filamentis brevibus suffulta effœta. Ovarium 1-loculare, ovulis numerosis placentæ bifidæ parie-



tali insertis; stylus deciduus; stigma bilobum. Capsula 1-locularis, septicide bivalvis. Semina plurima, placentis spongiosis immersa, minuta. Herbae annuae facie Cyclophylli generis *Canscora*, sed foliis omnibus perfoliatis caulibus teretibus et floribus vulgo solitariis axillaribus. Genus *Canscora* inter alia differt: corollae lobi 2 inferiores approximati a medio tali modo replicati ut plicis arcu approximatis quasi lobum singulum mentient indeque corollam primam faciem 3-lobam immitent; stamina 4, quorum unum tantum fertile et multo longius in plica loborum inferiorum receptum, caetera multo minora effata sunt.

253. PH. HELFERIANA, (*Canscora Helferiana*, Wall. MS.).

Herba annua dichotomo-ramosa glabra 1—2-pedalis; folia perfoliata, orbicularia,  $\frac{1}{2}$ —1 poll. lata, radiato-venosa, membranacea; flores parvi, albi, pedicello brevissimo gracili suffulti, solitarii, axillares; calyx laevis, teres, campanulatus, c. 3 lin. longus, lato-4-dentatus; corollae tubus calycis longitudine, inflatus, limbo parvo 4-lobo, lobis oblongis obtusiusculis; capsula ..... —Tenasserim (Helf. 5816).

Altera species hujus generis, *C. Parishii*, Hook. Bot. Mag. t. 5429, facile distinguitur floribus duplo majoribus, lobis multo latioribus, etc.

PEDALINEAE.

254. BRANDISIA DISCOLOR, Hf. et Th.

Capsula ovalis, compressiuscula, semipollicem fere longa, calyce subduplo longior, fulvo-tomentosa, mucronata, semina linearia, 2 lin. longa.—*Wightiae*, Wall., arcu affinis. Etiam *Buddleiæ* generi affinis, sed differt corolla irregulari, etc. et certissime inter *Sesameas* recipienda est. Gardneria, a cl. Benthamico Loganiaceis adnumerata, Solanea esse videtur.

EUPHORBIACEAE.

255. ACTEPHILA PUBERULA, nov. sp.

Frutex 4—8-pedalis, novellis minute puberulis; stipulae ovatae, breves valde deciduae; folia elliptico-v. obovato-oblonga, basi rotundata v. subcordata, petiolo  $\frac{1}{2}$ —1 $\frac{1}{2}$  pollicari puberulo glabrescente suffulta, 4—7 poll. longa, obtusiuscule acuminata, integra, crasse membranacea v. chartacea, supra glabra, subtus secus nervos puberula et glabrescentia, in sicco flavescenti-viridia; flores aurantiaci, monoici v. dioici, solitarii, axillares; calyx coriaceus; capsula cerasi magnitudine, granulato-rugulosa, pedunculo sursum incrassato  $\frac{1}{2}$ —2 pollicari glabro suffulta.—Andamans (etiam in insulis Nicobaricis).—*Actephila* habitu et characteribus generi *Trigonostemoni* valde accedit sed ovulorum numero distinguitur. *Tylosepalum aurantiacum*, Kurz, quod cl. Muell. Arg. ad Codiaeum duxit, ad genus *Trigonostemon* repellendum est ubi in sect. VI. *Eutrigonostemone* inserendum (cf. Teysm. et Binnend. Cat. pl. hort. Bogor 1868, p. 223).—



256. *ANTIDESMA FRUTICULOSUM*, nov. sp.

Fruticulus 2—4-pedalis ramosus pubescens; stipulæ lineares, acuminatæ, fulvo-pubescentes, petiolo longiores, 2—3 lin. longæ; folia parva, elliptico-ad obovato-lanceolata, petiolo crasso c. lin. longo fulvo-pubescente, basi attenuatâ rotundata v. obtusa, 1—2½ poll. longa, breviter et obtusiuscule acuminata cum mucrone, passim obtusa v. retusa, membranacea, supra sparse hirsuta subtus imprimis secus nervos adpresse pubescentia; flores minuti, sessiles, in spicas breves sat robustas fulvo-tomentosas simplices v. raro compositas vulgo e ramulis reductis ortas collecti; bracteæ ovato-lanceolatæ, pilosæ, minutæ; calyx extus tomentosus, 4-partitus, lobis rotundatis subacutis; discus subglaber; stamina 2 v. 3, antheris didymis; stylus terminalis, simplex; drupæ rubræ dein atropurpureæ, suboblique ovoidæ, læves, 2—2½ lin. longæ, putamine compresso subrugoso.—Pegu.—*A. Roxburghii*, Wall. valde affinis, sed omnibus partibus minor.—*N. B. A. molle*, Mull. Arg. synonymon est *A. velutinosi*, Bl.; bracteæ dum juveniles obovatæ, dein sub anthesi lineari-lanceolatæ.

## GLOCHIDION, FORST.

Genus distinctissimum, a cl. Muell. Arg. cum *Phyllanthi* genere inapte conjunctum, structura florum femineorum et etiam (uti jam beat. Roxburghius docuit) arillo (spurio) facile distinguitur. In sicco hic arillus spurius v. potius tegumentum exterius seminis ut plurimum pulchre miniatus v. coccineus succosus more Euphorbiacearum aliarum (e. g. *Claoxylon* etc.) membraniformis indeque ab auctoribus plurimis omnino prætervisus erat. Omnes species a cl. Muell. Arg. in *De. Prod.* vol. XV. et a cl. Benthamico in *Flora Austr.* vol. VI. sub *Eu.*- et *Hemi-glochidione* publicatæ iterum ad genus *Glochidii* reducendæ sunt.

257. *GLOCHIDION DASYSTYLUM*, nov. sp.

Arbuscula v. frutex 15—20-pedalis, pubescens, ramulis subteretibus fulvo- v. ferrugineo-hirsutis; folia ovata, subobliqua, petiolo 1 lin. longo tomentosa, acuminata, basi rotundata v. obtusa, 2—3 poll. longa, chartacea, molliter pubescentia, adulta supra minute puberula; flores desunt, feminei fasciculati v. subumbellati; capsulæ pedicello gracillimo usque ad ½ poll. longo piloso suffultæ, depresso-globosæ, c. ¼ poll. in diametro, 3-loculares et 6-lobulatæ, patenter albo-pilosæ; columna stylaris brevis, 3-fida, lobis linearibus simplicibus patentibus pubescentibus.—Martaban.—*Gynoon hirsutum*, Wight Ic. t. 1909 habitum plantæ supra descriptæ optime representat sed certissime specificè distinctum est.

258. *GLOCHIDION LEIOSTYLUM*, nov. sp.

Frutex magnus v. arbuscula, ramulis subangulatis novellisque pubescentibus; folia oblique ovata ad oblongo-ovata, petiolo lin. longo pubescente, basi inæquali acuta v. obtusa, longius v. brevius sæpius obtusiuscule acuminata et mucronata, chartacea, supra costâ exceptâ glabra, subtus præser-



tim secus nervos puberula; flores minuti, masculi pedicello longo gracili pubescente, feminei sessiles v. subsessiles, glomerati; maris calyx vulgo 5-fidus, lobis lanceolatis acutis; stamina 3; fem. calyx 5-partitus, parce pubescens, segmentis lineari-lanceolatis acuminatis; ovarium villosum; columna styli conica, sursum attenuata et 3-fida, lævissima; capsulæ omnino iis *G. dasystyli* conformes, depresso-globosæ, c.  $\frac{1}{4}$  poll. in diametro, 3-loculares et 6-lobulatæ, pilosulæ, sessiles v. brevissime pedunculatæ stylis glabris.—Pegu, Martaban, Tenasserim.—Priori arcte affinis.

259. *GLOCHIDION ANDAMANICUM*, nov. sp. (*Phyllanthus Andamanicus*, Kurz in And. Rep. ed. 1. p. XVI.)

Arbuscula 25-pedalis glaberrima, ramulis compresso-angulatis; folia elliptica v. elliptico-oblonga, inferiora sæpius minora et suborbiculari-elliptica, basi acuta v. obtusa, petiolo  $1\frac{1}{2}$ — $2\frac{1}{2}$  lin. longo suffulta, obtusa v. obtusiuscule acuminata, 2—3 poll. longa, tenui-coriacea, lævia, subtus glaucescentia, flores fem. parvi, sessiles, glomerati, masculi pedicello gracili puberulo suffulti, axillares, fasciculati: calyx maris puberulus, lobis oblongis obtusis; stamina 3; calyx fem. 5-lobus, parce puberulus; ovarium villosotomentosum, columna styli crasse conica, ovarii crassitudine, truncata, stigmatibus 5—6 tuberculiformibus terminata; capsulæ 6—4-cocceæ, depresso-globosæ, utrinque concavæ, canescenti-puberulæ et 12—8-sulcatæ, plus quam  $\frac{1}{2}$  poll. in diametro.—Andamans.—Ex affinitate *G. Bancani*, Miq. speciei haud cum *G. Zeylanico* conjungendæ.

### CICCA, L.

Sub nomine hocce *Phyllanthi* species epicarpio carnoso a me conjunguntur; structura florum et masculorum et femineorum autem valde diversa est, viz.

Subg. I. *EUCICCA* (*Cicca*, L.) Flores tetrameri. Stamina libera 4. Glandulæ in maribus et hermaphroditis liberæ et distinctæ. Capsulæ drupaceæ, magnæ, carnosæ, sæpius 4-cocceæ.

Subg. II. *SECURINEGA*, Muell. Arg. Flores 5-meri. Stamina 5, libera. Discus annulari-5-gonus. Capsula bacciformis, 3- v. abortu 2-cocca, alba, in vivo magis minusve succulenta.

Subg. III. *KIRGANELIA*, A. Juss. Flores 5—6-meri. Stamina dialypa, interiora 3 omnino, exteriora basi tantum connata. Glandulæ in fem. distinctæ. Capsulæ bacciformes, 12—6-cocceæ, succulentæ, purpureæ v. atropurpureæ.

Subg. IV. *EMBLICA*, Gærtn. Flores vulgo 6-meri. Stamina in columnam connata. Ovarium 3-loculare. Glandulæ in fem. urceolato-connatæ. Capsulæ drupaceæ, magnæ, aqueo-albæ, putamine capsulari 3-cocco lignoso tarde dehiscente.



260. *CICCA* (EMBLICA) *ALBIZZIOIDES*, nov. sp.

Arbor elegans, 25—30-pedalis, novellis puberulis; folia oblonga, inferiora elliptica, v. suborbicularia, subsessilia, basi rotundata, usque ad poll. longa et  $\frac{1}{2}$  poll. lata, retusa v. obtusa, chartacea, glabra, subtus glaucescentia; flores minuti, flavescentes, glabri, pedicello glabro gracili suffulti, feminei subsessiles, secus ramulos novellos pubescentes glomerati et racemum interruptum subaphyllum efformantes; calycis lobi obovato-lineares, columna staminalis longiuscula et gracilis; styli 3, basi connati, 2-fidi, lobulis latiusculis integrisque; capsulae drupaceae iis *C. Emblicae* conformes sed duplo majores, sessiles, in vivo plus quam poll. in diametro, globosae, aqueo-albi et nervosae, pericarpio carnosio acidissimo.—Pegu.

261. *CICCA* (EMBLICA) *MACROCARPA*, nov. sp.

Arbuseula 20—25-pedalis, habitu *C. Emblicae*, sed cortice aspero fisso rugoso insignis, ramulis puberulis; folia anguste linearia, subsessilia, acuta v. obtusiuscula, basi rotundata, coriacea, marginibus subreflexis,  $\frac{1}{2}$ — $\frac{3}{4}$  poll. longa, glauco-viridia, glabra; flores lutescentes, pedicellis filiformibus suffulti, secus ramulos novellos breves aphyllis fasciculati et racemum compactiusculum usque poll. longum canescenti-pubescentem efformantes; calyx glaber, 6-partitus, lobis obovato-oblongis; columna staminalis gracilis, styli 3, basi breviter connati, robusti, 2-lobi, lobulis latis et brevibus 3-crenulatis; capsulae drupaceae cum iis *C. albizzioidis* exacte congruunt.—Prome, Pegu.—*C. Emblicae* arete affinis, sed differt cortice, stylorum lobis et capsulis duplo majoribus.

262. *APOROSA VILLOSULA*, nov. sp.

Arbor sempervirens, 25—30-pedalis, novellis parce pubescentibus mox glabrescentibus; folia oblonga ad elliptico- et obovato-oblonga, basi obtusa v. acuta, petiolo apice incrassato  $\frac{1}{2}$ — $\frac{3}{4}$  glabro suffulta, breviter et obtusiuscule acuminata v. apiculata, integra v. subintegra, 3—5 poll. longa, rigide chartacea v. subcoriacea, glabra, in sicco fusciscentia et nitentia; flores minuti (masculi desunt), feminei sessiles, bracteis latis obtusiusculis glabris ciliolatis dense imbricatis protecti et spicas amentaceas breves usque semipollicem longas binas v. per plures glomeratas axillares v. supra foliorum delapsorum cicatricibus orientes efformantes; ovarium dense fulvo-villosum, stigmatibus laevibus brevibus recurvis breviter bilobis terminatum; baccae aurantiacae, ovoideae, pisi majoris magnitudine, apiculatae, parce hirsutulae v. passim subglabrae, 2—1-loculares.—Pegu, Martaban, Tenasserim, Andamans.—*A. Roxburghianae* nimis affinis.—N. B. *Antidesma lunatum*, Miq. = *Aporosa lunatum*, mihi; hic planta cl. Maingay No. 1416 et Wall. Cat. 5975, sub nomine "*Cynometra* fide Bentham."

263. *HYMENOCARDIA PLICATA*, nov. sp. (*Coccoceras plicatum*, Muell. Arg. ?)



Arbor decidua, novellis ferrugineo-puberulis; folia oblonga et elliptico-ad obovato-oblonga, petiolo poll. longo v. paulum longiore puberulo suffulta, basi 3-nervia rotundata v. subcordata et sæpius subattenuata, breviter et abrupte obtusiuscule acuminata, crenato-repanda, 3—5 poll. longa, chartacea, subtus secus nervos puberula et dense lutescenti- v. rubescenti-glandulosa; flores dioici, masc. pedicello brevissimo puberulo, glomerati, feminei sessiles, in racemos elongatos axillares v. supra foliorum delapsorum cicatricibus egredientes dum juvenilia amentaceos collecti; calyx masc. in alabastro globosus, subglaber; stamina numerosa, libera; ovarium dimerum, compressum, dense glanduloso-punctatum, transverse rugoso-plicatum, stylis 2 brevibus magnis dense papilloso-villosis terminatum; capsulæ desiderantur.—Pegu, Martaban, Tenasserim (Helf. 4963).—Inter plantam meam et eam cl. Muell. Arg. ex descriptione discrimen nullum adest nisi ovarium dimerum, nec alato 3-gonum. *Mallotus Wallichianus*, Muell. Arg. ex Ava, a me non visa, nulla nota differe videtur. *Hymenocardia*, ovulis solitariis nec binis gaudens, a *Coccocerate* imprimis seminibus compressis et testæ textura differt. Numerus coccorum in *Coccocerate* variat 2—4 (et probabiliter usque 5).

264. *CYCLOSTEMON EGLANDULOSUM* (*Hopea eglandulosa*, Roxb. Fl. Ind. II. 611).

Arbor mediocris, 40—50-pedalis, glabra; folia subobliqua, ovato-oblonga v. ovato-lanceolata, basi acuta v. obtusa, petiolo 2—3 lin. longo gracili suffulta, integra, obtusiuscule acuminata,  $1\frac{1}{2}$ —2 poll. longa, tenui-coriacea, eleganter reticulata, glabra; flores masculi glabri, feminei puberuli, c. 3 lin. in diametro, pedicello puberulo c.  $\frac{1}{2}$  pollicari suffulti, solitarii v. raro bini et axillares; ovarium fulvo-velutino-pubescent, 2-loculare; stigmata sessilia glabra, dilatato-3-angularia, crenata; drupæ desunt.—Arracan (etiam in montibus Bengalie orientalis).

265. *CYCLOSTEMON SUBSESSILE*, nov. sp.

Arbuscula 25—30-pedalis, glabra; folia oblonga ad elliptico-oblonga, basi subinæqualia, obtusiuscule et sæpius subabrupte acuminata, 4—6 poll. longa, chartacea, integra v. undulata v. obsolete crenata, glabra, laxe reticulata; flores parvi, pedicello vix  $\frac{1}{2}$  lin. longo canescenti-pubescente suffulti, glomerati, axillares, calycis lobi concavo-orbiculares, extus canescenti-pubescentes, lineam circiter longi; drupæ ovoideo-oblongæ, obsolete 4-lobæ, c.  $\frac{3}{4}$ — $\frac{1}{2}$  poll. longæ, pedunculo usque ad 1 lin. longo suffultæ, aurantiacæ, dense fulvo-puberulæ, 2-loculares et 2-spermæ, stigmatibus 2 v. raro 3 obtusiusculis minutis sessilibus coronatæ.—Martaban (etiam in montibus Khasyanis).

266. *HEMICYCLIA ANDAMANICA*, Kurz in And. Rep. 1870, p. 47.

Arbor 40—50-pedalis, glabra; folia ovato-oblonga v. oblongo-lanceolata, basi rotundata inæqualia, petiolo parce pubescente glabrescente 2—3 lin. longo suffulta, caudato-acuminata, obsolete repando-serrata, rigidiuscule chartacea,



3—3½ poll. longa, eleganter reticulata, glabra; flores majusculi, pedicello minute appresse-hirsuto 1—1½ lin. longo suffulti, solitarii v. bini, axillares: calyx appresse puberulus, lobis concavo-rotundatis, 2 interioribus tenuioribus c. 2 lin. longis; stamina numerosa; drupæ pedunculo vulgo deflexo crasso 2—3 lin. longo, obverse ovoideæ, plus quam semipollicem longæ, teretes, læves, putamine semiterete, tenui-coriaceo.—Andamans. (Helfer 4962, mas).

267. *BRIEDELIA AMÆNA*, Wall. ap. Voigt. Hort. Calc. 157.

Arbuscula 15—25-pedalis, glabra; folia elliptica ad obovato-ellipticā, petiolo lævi 2 lin. longo, basi obtusa, 2½—4 poll. longa, obtusa v. rotundata tenui-chartacea, glabra, subtus subglaucescentia, nervis lateralibus et reticulatione exiguis; flores glabri, masculi flavescentes, multo minores, feminei brevi-pedicellati, dense glomerati, rubri, axillares; calyx fem. glaber, lobis lanceolatis subulato-acuminatis, lin. fere longis: petala minuta, obovato-oblonga, rosea; discus orbicularis, sublobatus; drupæ globosæ, pisi magnitudine, succulentæ, atropurpureæ, læves.—Burma. Genus *Briedelia* a *Lebidieropside* differt coccis inter se non connatis et seminum testa membranacea sicca. Drupa in *Lebidieropside* epicarpio carnoso gaudet, cocci lignosi connati et semina tegumento exteriori succoso-carnoso circumdata sunt.

268. *BRIEDELIA PUBESCENS*, nov. sp.

Arbuscula 20—30-pedalis, novellis pubescentibus; folia elliptico-ad obovato-oblonga, basi rotundata v. obtusa, petiolo c. 2 lin. longo pubescente, breviter et abrupte acuminata v. apiculata, tenui-chartacea, integra, supra glabra v. subglabra, subtus fulvescenti-pubescentia; flores parvi, albi, pedicello brevi pubescente suffulti, glomerati, axillares; calyx dense puberulus, lobis lanceolatis c. 1 lin. longis, petala obovata, truncata et 3-denticulata, discus magnus, orbicularis, aureus; drupæ desunt.—Pegu.—Habitus omnino *B. Moonii*, Thw.

269. *BRIEDELIA DASYCALYX*, nov. sp.

Frutex magnus scandens, novellis fulvo-pubescentibus; folia obovata ad obovato-oblonga, basi obtusa, petiolo crassiusculo c. 2 lin. longo suffulta, breviter acuminata apiculata v. obtusiuscula, 2—6 poll. longa, obsolete repanda, chartacea, supra glabrescentia, subtus subglaucescentia et parce pubescentia, nervis venisque valde prominentibus; flores parvi, fulvo-tomentella, sessiles, numerosi, in glomeros densos tomentosos axillares collecti et sæpius in racemum terminalem reducto-foliatum transformati; calyx extus dense fulvo-pubescent, c. 2 lin. in diametro, lobis sub fructu lin. longis lanceolatis acutis; discus orbicularis, lævis, in centro annulo setoso drupæ basin cingente auctus; petala obovato-linearia; drupæ ovoideo-ellipticæ, pisi magnitudine, læves, atropurpureæ, succulentæ, calyce non accrescente suffultæ. Var. *α*. genuina, frutex scandens, folia multo majora et texturæ tenuioris, acuminata. Var. *β*. aridicola, frutex minor et erectus, folia minora, usque



ad 3 poll. longa et subcoriacea, obtusiuscula v. obtusa.—Var.  $\alpha$ . Ava, Prome, Pegu; var.  $\beta$ . Prome.—Ex affinitate *B. stipularis*, Bl.

270. *CLEISTANTHUS STENOPHYLLUS*, nov. sp.

Arbor v. frutex? glaber; folia lineari-lanceolata, basi acuta, petiolo 2 lin. longo, longe subulato-acuminata, 3—4 poll. longa, chartacea, integra, glabra subtus subpallida; flores minuti sessiles, pauci glomerati, axillares; bractæ ciliatæ; calyx extus parce appresse pubescens; ovarium glabrum, sessile; capsulæ desunt.—Tenasserim v. Andamans (Helf. 4875).—N. B. *Nanopetalum*, Hassk. ad *Cleistanthum* certissime reducendum est.

271. *CROTON ROBUSTUS*, nov. sp.

Arbuscula robusta, 15—25-pedalis, novellis dense ferrugineo-lepidotis; folia elliptica v. elliptico-oblonga, petiolo crasso ferrugineo-lepidoto usque pollicem longo suffulta, basi biglandulosa obtusa v. acuta,  $1\frac{1}{2}$ —2 poll. longa, obtusa v. obtusiuscula cum v. absque mucrone, raro subretusa, coriacea, obsolete repanda v. integra, subtus parce ferrugineo v. lutescenti-lepidota et glabrescentia, nervis lateralibus tenuibus vix conspicuis; flores parvi, masculi brevi-pedicellati canescenti-villoso-lepidoti, feminei subsessiles, majores ferrugineo-lepidoti racemos breviores spiciformes formantes, rachi canescenti v. ferrugineo-tomentoso-lepidota et sulcata; calyx tomentoso-lepidotus; styli 2-fidi; ovarium dense cupreo-lepidotum; capsulæ globoso-ovoideæ, 3-cocceæ, 6-sulcatæ, pisi majoris magnitudine, fulvo-argenteæ, obsolete lepidoto-tuberculatæ; semina 3 lin. fere longa, 3-angulari-oblonga, lævia, brunnea.—Pegu, Tenasserim.—Ex affinitate *C. argyrati*, Bl. (syn. *C. bicolor*, Roxb.).

272. *CROTON CALOCOCCUS*, nov. sp.

Fruticulus stellato-hirsutulus; folia elliptico-ovata v. ovata, basi biglandulosâ rotundata, petiolo gracili 3—4 lin. longo stellato-aspero suffulta, breviter acuminata, repando-serrulata, raro subintegra, 1—2 poll. longa, membranacea, flavescenti viridia, subtus stellato-pubescencia, supra stellato-aspera; bractæ minutæ, subulatæ, hirsutæ; flores graciliter pedicellati, racemos graciles pubescentes terminales formantes; calyx hispidus, lobis sub fructu c.  $1\frac{1}{2}$  lin. longis lanceolatis; capsulæ pisi magnitudine, profunde et subdivaricato 3-lobæ et 3-cocceæ, tuberculis pilis hispidis radiantibus terminatis obtectæ; semina lævia, brunnea.—Pegu, Rangoon.—Species elegans, *C. Tiglii* habitu, nulli arcte affinis.

273. *CROTON FLOCCULOSUS* nov. sp.

Arbuscula, novellis dense sed fugaciter albo- v. flavescenti-stellato-tomentosis; folia cordato-ovata, basi biglandulosâ 5-nerviâ cordata v. rotundata,  $1\frac{1}{2}$ —3 poll. longa et fere æquilata, obtusiuscule et subabrupte acuminata v. apiculata, crenata v. crenato-serrata (in serraturis glandulosa v. eglandulosa), membranacea, juniora subtus dense stellato floccosa, dein utrinque v. supra tantum glabrescentia; flores.....pedicellati, in racemos terminales dispositi; capsulæ nutantes, pisi magni magnitudine, subglobosæ et obsolete 3-angulari-



res, crustaceæ, dense et molliter canescenti-stellato-tomentosæ; semina c. 2 lin. longa, elliptico-oblonga, dorso convexo lævia.—Pegu, Prome.—*C. caudato* affinis.

274. *CROTON SUBLYRATUS*, nov. sp.

Frutex deciduus, 5—8-pedalis, novellis ferrugineo-furfuraceis; folia obovato-ad sublyrato-oblonga, basi stipitato-biglandulosâ attenuatâ rotundata v. subcordata, petiolo  $\frac{1}{4}$ — $\frac{1}{2}$  pollicari stellato-furfuraceo suffulta, obtusa v. obtusiuscule acuminata, 3—5-poll. longa, argute repando-serrulata, membranacea, adulta glabra v. subtus secus nervos stellato-aspera: flores parvi, pedicellati, stellato-tomentosa, racemum ferrugineo- v. fulvo-stellato-tomentosum ramulos novellos terminantem formantes; sepala lato-lanceolata, acuta, extus fulvo-pubescentia; petala marginibus ciliato-pubescentia; torus pilosus; stamina c. 15—20, glabra; petala in fl. fem. nulla; ovarium dense fulvo-stellato-tomentosum, stigmatibus brevibus; capsula parvæ, pisi minoris magnitudine, 3-cocceæ, subglobosæ, crustaceæ, læves, parce appresse-stellato-hirtæ; semina 2 lin. fere longa, albido- et brunneo-variegata, lævia.—Andamans.—*C. Tiglio* quodammodo affinis.

275. *CROTON CROZOPHOROIDES*, nov. sp.

Suffrutex erectus, 1—1½-pedalis, dense stellato-tomentosus; folia ovali-oblonga v. ovalia, basi stipitato-biglandulosâ rotundata v. obtusa, petiolo  $\frac{1}{2}$ —1½ pollicari stellato-tomentoso subglabrescente suffulta, obtusa v. acuta, 1½—2 poll. longa, indistincte dentato-crenata (denticulis pilis stellatis terminatis), crasse membranacea, juniora dense canescenti-stellato-tomentosa, supra granulato-aspera et subtus tomentella, nervis et reticulatione crassis et prominentibus; flores lutescentes, parvi, masculi pedicello 1—2 lin. longo (feminei brevi crasso) stellato-tomentoso suffulti, racemos longos stellato-pubescentes ramulos novellos axillares terminantes formantes; bractee conspicuæ, 2—3 lin. longæ, lineares, stellato-pubescentes et muriculis coccineoglandulosi ciliatæ, calyx extus dense fulvo-stellato-tomentosus, femineus major, lobis lanceolatis acutis; petala maris oblongo-lanceolata, marginibus albo-villosis; stamina numerosa, glabra, toro piloso inserta; ovarium dense fulvo-stellato-tomentosum, stylis coccineis, bis dichotomicè-divisis; capsula ovoideo-globosæ, leviter 3-lobæ, 3-cocceæ, cerasi putaminis magnitudine, apice depressæ, fulvo-stellato-tomentosæ, crustaceæ.—Species pulcherrima distinctissima, habitu omnino *Jalocrotonis*.—Prome.

276. *CÆLODISCUS HIRSUTULUS*, nov. sp.

Suffrutex 1—2-pedalis, simplex, ramulis junioribus compressis hirsutis; folia opposita, suborbicularia, 3—6 poll. longa et subæquilata, basi 7-nerviâ subobsolete maculatâ cordata, petiolo  $\frac{1}{2}$ —1 ped. fere longo pubescente suffulta, brevissime et obtusiuscule acuminata, subintegra v. obsolete repando-dentata, chartacea, utrinque sparse sed longe hispida, subtus prominenter et crasse nervosa, glabrescentia et parce aureo-glandulosa; spicæ masculæ densæ



et breves, usque  $\frac{1}{2}$  pollicares, sessiles, fulvo-tomentellæ, axillares; bractæo sublineares, calyce paulo longiores; calyx maris plusquam lin. in diametro, fulvo-tomentellus, in alabastro globosus; sepala 3, lato concavo-ovata; stamina numerosissima, glabra; flores feminei et capsulæ ignotæ.—Pegu, Prome.—*Cœlodiscus* melius species omnes *Malloti* includit quæ alabastro apiculato et seminibus carunculatis gaudent. Genus tali modo reformatum, characteribus stabilibus ornatum, magis naturale evadit, et inter alia *Mallotum eriocarpoidem*, *eriocarpum*, *lappaceum*, *longipedem* et *disparem* recipit.

277. *CLAOXYLON LONGIPETIOLATUM*, nov. sp.

Frutex subsimplex v. arbusculus, 8—15-pedalis, caulibus fistulosis et novellis appresse pubescentibus, folia elliptica ad ovato-oblonga, basi acuta v. obtusa, v. raro subcordata, petiolo 5—3 poll. longo suffulta, breviter et tenuiter acuminata, 4—8 poll. longa, crasse membranacea, undulato-crenata v. crenato-dentata, penninervia, utrinque scabra, subtus secus nervos parce appresse pubescentia; flores parvi, masculi racemos nutantes canescentes appresse hispidos formantes; capsula (unica tantum adest in montibus Khasya a cl. Hookero et Thomsonio collecta et a speciminibus ipsis separata) iis *Malloti eriocarpoidi* nimis affinis, profunde 3-loba, muricibus hirsutis obtecta, stylis simplicibus papilloso-fimbriatis coronata, 3-cocca, coccis pisi magnitudine.—Pegu, Martaban.—*C. longifolio* affinis.

278. *CLAOXYLON LEUCOCARPUM*, nov. sp.

Fruticulus 3—4-pedalis, caulibus fistulosis, novellis stellato-pubescentibus; folia ampla, lato-ovata, basi rotundata v. subcordata, petiolo puberulo glabrescente 3—8 pollicari suffulta, pedem circiter longo et fere æquilata, basi crasse-3- v. sub-5-nervia, breviter et obtusiuscule acuminata, repando-dentata, membranacea, supra stellato-aspera, subtus stellato-puberula, nervis venisque transversis crassis et prominentibus percursa; flores desunt, feminei breviter-pedicellati, racemos breves stellato-tomentosos axillares efformantes; calyx stellato-tomentosus, inæquali-2-sepalus; ovarium dense muricatum, stellato-hispidum; capsulæ pedunculo puberulo 2—3 lin. longo crasso suffultæ, cerasi minoris magnitudine, 3- v. raro 4- v. 2-coccae et -lobæ, stylis crassis papilloso-fimbriatis coronatæ, dense muricati (muricibus stellato-hispidis), albæ, carnosæ-coriacæ; semina subgloboso-ovoidea, lævia, pisi minoris magnitudine, arillo niveo sacculento omnino inclusa.—Pegu.

279. *TRAGIA BURMANICA*, nov. sp.

Frutex volubilis, novellis appresse puberulis; folia largæ, cordato-ovata, petiolo 1—3 pollicari canescenti-appresse-puberulo suffulta, basi 5-nervia sinuato-cordata, breviter et abrupte acuminata, tenui-chartacea, remote denticulata v. subintegra, 2—5 poll. longa, supra sparse albo-setulosa, flores desunt; pedunculi solitarii, graciles, 2—3 poll. longi, puberuli, e ramulis novellis axillaribus egredientes; calycis lobi sub fructu lato-ovati, foliacei, acuti, pollicem fere longi, extus sparsius, intus dense appresse setosi; capsulæ 3-



coccæ, coccis pisi majoris magnitudine, longe et rigide appresse hirsutæ, lignosæ, calyce aucto 6-foliolato sustentæ; semina globosa, velutina, pulcherrime atrobrunneo-tigrinæ.—Martaban.

BLUMEODENDRON nov. g.

Flores dioici. Calyx maris valvatus, 3-partitus. Petala nulla. Discus maris glandiformis. Stamina numerosa, libera, receptaculo centrali elevato inserta. Ovarii rudimentum nullum. Ovarium 3-loculare, ovulis solitariis. Capsula magna, fibroso-carnoso, 3-cocca. Semina magna, arillo spurio crasso involuta. Albumen saponaceum. Cotyledones foliacei, sub-orbiculares; radícula brevis.—Arbores, foliis oppositis et ut plurimum verticillatis, simplicibus, petiolis incrassato-articulatis. Flores mediocres, pedicellati, breviter racemosi, racemis fasciculatis axillaribus.

Genus a cl. Muell. Arg. cum *Malloto* incaute conjunctum.

280. BLUMEODENDRON TOKBRAI, (*Mallotus Tokbrai*, Muell. Arg. in DC. Prodr. XV/2 956.) Etiam in insulis Andamanicis occurrit.

Altera species, sub nomine *Paracrotonis penduli* in Horto Bogoriensi culta et sub eodem nomine a cl. Muell. Arg. in Prodr. annotata, nomine *Bl. Muelleri* saluto. Folia sunt minora, texture tenuioris et subtus lævia. —*Paracroton pendulus*, Miq., mihi ignota est, sed jam racemis 3—4½-pedibus capsulisque tomentosis toto cælo differt.

N. B. *Mallotus albus*, Muell. Arg. = *M. tetracoccus* (*Rottlera tetracocca*, Roxb. H. Ind. III. 826.)—*Rottlera alba*, Roxb. cum *Malloto paniculato*, Muell. Arg. conjungenda est.

281. CLEIDION NITIDUM, Thw. MS.

Arbuscula glaberrima; folia lato- ad elliptico-lanceolata, petiolo 2—3 lin. longo (in speciminibus Ceylonicis longiore) crasso suffulta, utrinque acuminata, a medio repando-dentata, 2—3½ poll. longa, tenui-coriacea, glabra, in sicco fusciscentia; flores masculi parvi, glabri, sessiles, pauci, glomerati, spicam glabram v. indistincte puberulam elongatam oppositifoliam terminalem efficientes; calyx glaber, in alabastro globosus; flores aperti etc. ignoti.—Andamans.

282. MACARANGA MOLLIUSCULA, nov. sp.

Arbor mediocris, novellis molli-pubescentibus; stipulæ magnæ, lineari-oblongæ, acuminatæ; folia magis minusve orbiculari-ovata, petiolo 3—4 pollicari glabrescente glaucescente suffulta, basi multinerviâ lato-cordata, ½—1½ ped. in diametro, sinuato-denticulata, breviter acuminata, membranacea v. submembranacea, supra molli-puberula v. subglabra, subtus dense puberula et luteo-glandulosa, raro glabrescentia; flores parvi, masculi et feminei sessiles, illi glomerati bracteâ foliaceâ 2—4 lin. longâ lato-ovali v. ovatâ acuminatâ dentatâ v. pectinatâ protecti et, paniculam axillarem pedunculatam subgracilem puberulam efficientes; feminei solitarii bracteâ cuneato-oblongâ



sæpius 3-lobâ serrato-dentatâ v. fimbriatâ foliaceâ cōmentellâ c.  $\frac{1}{4}$ — $\frac{1}{2}$  pollicari subtenti, spicas simplices interruptas puberulas formantes; antheræ 5—6; ovarium appresse hispidulum, 2-loculare; styli 2, subulati; capsulæ desunt. Andamans (Helf. 4722).—

N. B. *M. gummistua*, Muell. Arg. = *M. denticulata*, Muell. Arg.

283. *MACARANGA MEMBRANACEA*, nov. sp.

Frutex sursum ramosus, 2—4-pedalis, novellis puberulis, ramulis glabrescentibus et glaucescenti-fuscis; folia ovata v. suboblongo-ovata, non peltata, basi 3-nerviâ subtruncata v. subsinuato-rotundata, petiolo gracili 1—3 poll. longo puberulo suffulta, 2—4 poll. longa, simplicia v. passim in lobos 2 v. 1 laterales longe acuminatos producta, remote calloso-dentata, longissime et tenuiter acuminata, juniora utrinque rubescenti-glandulosa et subvelutina, v. supra glabrescentia; flores masculi, ignoti, feminei sessiles, solitarii bini v. terni, bractea foliaceâ  $\frac{1}{2}$ — $\frac{3}{4}$  pollicari ovatâ acuminatâ lacerto-dentatâ puberulâ et glandulosâ subtenti et in capitulum involucreatum pedunculo 1—3 poll. longo pubescente axillari suffultum collecti; calyx urceolatus, limbo tubulari styli basin amplectente, ovarium rubicundo-glandulosum et hirsutum, styli 2,  $\frac{1}{2}$  poll. longi, filiformes, glabri; capsulæ 2-coccae et 2-lobæ, coccis pisi minoris magnitudine, rubicundo-glanduloso-pulverulentæ et muricibus filiformibus glabris sparsis obtectæ; semina globosa, brunnea, lævia.—Ava, Martaban.—*M. involucreata* affinis.

284. *CODLEUM ANDAMANICUM*, nov. sp.

Frutex magnus, glaber; folia obovato-oblonga ad elliptica, basi acuta v. obtusa, petiolo 3—10 lin. longo, breviter et obtusiuscule acuminata, 3—6 poll. longa, pergamacea, integra, glabra; flores parvi, masculi pedicello capillari 3—4 lin. longo suffulti et racemum umbelli- v. corymbi-formem formantes, feminei paulo majores, pedicello brevissimo crasso supportati et corymbulum subsessilem ramulos novellos sæpius axillares terminantem efficientes; calycis lobi rotundati, glabri, ii fl. fem. ovati, acuti; petala in mare parva; glandulæ hypogynæ magnæ, trigono-truncatæ, carnosæ; stamina in seriebus pluribus; ovarium appresse hirsutum, stylis 3 longissimis profunde bifidis, capsulæ pedunculo nutante brevi sursum incrassato suffultæ, globoso-3-coccae, cerasi minoris magnitudine, indistincte scabriusculæ, lignoso-coriaceæ; semina ovoideo-elliptica, holosericeo-canescencia, variegata.—Andamans.—*C. umbellato*, Muell. Arg. affinis.

285. *CODLEUM* ? *LUTESCENS*, nov. sp.

Frutex dioicus?, 8—12-pedalis, novellis sparse puberulis; folia lanceolata, passim subfalcata, basi acuminata, petiolo 2—3 lin. longo puberulo glabrescente suffulta, obtusiuscule acuminata, pergamacea, glabra, penninervia, in sicco flavescencia; flores masculi minuti, pedicello capillari 2—3 lin. longo suffulti, umbellati, umbellis pedunculo puberulo  $\frac{1}{2}$ — $\frac{1}{4}$  pollicari apice capitato-bracteato solitario axillari suffultis; calyx 3-partitus, leviter imbr-



catus, lobis ovato-lanceolatis, c.  $\frac{1}{2}$  lin. longis, acutis, extus appresse hispidulis; stamina c. 8—12 circa centrum laxe luteum disci latiusculi continui inserta petala nulla; flores feminei etc. ignoti.—Andamans.

286. *EXCÆCARIA HOLOPHYLLA*, nov. sp.

Arbor sempervirens, glaberrima; folia alterna, oblonga ad lato-lanceolata, basi acuta v. obtusa, petiolo 3—4 lin. longo suffulta, obtusiuscule acuminata, pergamacea, integerrima, 3—6 poll. longa, nervis lateralibus curvis tenuibus; flores parvi, sessiles, masculi 3-ni v. plures, feminei basilares solitarii, bracteis brevibus latis (magnæ glandulæ utrinque insertis) protecti et racemum spiciformem oppositifolium terminalem glabrum formantes; flores masculi 2—3-andri; baccæ ignotæ.—Martaban, Tenasserim—*E. oppositifoliæ* affinis, sed foliis integerrimis alternis statim distinguenda.

287. *EUPHORBIA SCABRIFOLIA*, nov. sp.

Herba annua, subsimplex, gracilis, 1—2-pedalis, ramis glabris in sicco sulcatis; stipulæ breves et angustæ, parce et rigide fimbriatæ; folia linearia v. elongato-lineari-oblonga, brevissime petiolata v. subsessilia, basi inæquali rotundata v. obtusa, 1—2 poll. longa, mucronato-acuta, cartilagineo-serrulata, crasse membranacea, supra glabra, subtus sparse crispato-pilosula, 1-nervia, nervis lateralibus nullis, glauco-viridia; capitula subsessilia, in cymas glomeriformes subsessiles axillares v. spurie terminales collecti, v. sæpe bina v. solitaria; involucrum campanulatum, breve, extus puberulum, fauce villosum, fimbriatum, glandulis in appendicem obovato-cuneatum laceratum album plus quam lin. longum expansis; ovarium canescenti-pilosulum; styli graciles, 2-lobulati; capsulæ 3-cocccæ, parce crispato-pilosulæ, c. 2-lin. in diametro, coccis compresso-acutis dorso nudis; semina obsolete 3-gono-oblonga, sordide aurantiaca, opaca, lævia.—Prome, Pegu.—Ex affinitate *E. notoptera*, Boiss.

288. *EUPHORBIA EPIPHYLLOIDES*, Kurz in And. Rep. ed 2. 48.

Arbuscula 15—12-pedalis, carnosa, glabra, inermis, ramis complanatis crasse alatis, crenato-sinuatis, ad articulationes attenuatis et teretibus; stipulæ obsoletæ; folia obovalia, brevissime petiolata, basi obtusa, glabra, carnosa, nitentia, rotundata v. subretusa, nervis lateralibus obsoletis; capitula in cymulâs dichotomas brevipedunculatas glabras e sinubus crenaturarum ramorum egredientes disposita; capsulæ profunde trilobæ, glabræ, iis *E. ligulariæ* consimilia.—Andamans.]

### URTICACEÆ.

*BALANOSTREBLUS*, nov. gen. Pl. XIX.

Flores monoici; masculi ignoti (ex inflorescentiis valde juvenilibus probabiliter amentacei?). Feminei racemosi: perianthium cum ovario connatum, sursum liberum et ovarium omnino includens, apice perforatum. Ovarium semisuperam, 1-ovulatum, ovulo pendulo; stylus per brevis, e pe-





rianthii orificio protrudens; stigmata 2, breviter crassa, villosula. Drupa perianthio carnosio inclusa, monosperma. Arbor lactescens, subglabra, foliis alternis grosse spinescenti-dentatis. Genus imperfecte cognitum sed distinctissimum *Antiar* affine

289. *BALANOSTREBLUS ILICIFOLIUS*, nov. sp.

Arbor ramulis scabriuscule puberulis; folia elliptica ad lato-ovalia, petiolo terete 1—2 lin. longo glabro suffulta, basi sæpius subinæquali acuta v. obtusa, rigide coriacea, spinoso-acuta, grosse spinoso-dentata, 1—3 poll. longa, glabra, supra nitida costa supra immersa subtus unacum nervis lateralibus arcuato anastomosantibus valde prominente; flores parvi, viridiusculi, pedicello brevi crasso suffulti, in racemum axillarem brevem collecti; perianthium obturbatum, rugulose-tuberculatum, c. 2 lin. longum; drupæ pisi minoris magnitudine, rubræ, rugulosæ, carnosæ, glabræ.—*Chittagong* (Hf. et Th. sub *Sapi* sp. No. 4); *Ava* (J. Anderson).

*MUSACEÆ.*

290. *MUSA RUBRA*, Wall. ap. Voigt Cat. Hort. Calc. 579, non hort.; Kurz in Journ. Agr. Hort. Soc. Beng. XIV. 301.

Humilis, cæspitosa, caudicibus pollicem vix crassis viridibus; folia oblonga basi subrotundata glabra, petiolis brevibus foliaceo-marginatis; spathæ saltem apice imbricatæ deciduæ ovales obtusæ rubræ pruinosulæ 5—6-floræ; flores aurantiaci, labio pumilo; fructus crasse truncato-rostrati lutei glabri; semina depresso-turbinata lævia.—*Pegu, Martaban.*

*LILIACEÆ.*

291. *DRACÆNA HELFERIANA*, Wall. MS. (*Cordyline Helferiana*, T. And. Cat. Hort. Calc. 72.)

Suffrutex parvus, decumbens, simplex v. vix ramosus, glaber, 1—2-pedalis, caudice basi radicante 3—4 lin. crasso; folia approximata, obverse lanceolato-oblonga, sessilia et basi dilatata, v. in petiolum lato-foliaceum longiorem v. breviorē vaginantem subattenuata, acuta v. breviter acuminata, 1—1½ ped. longa et 1½—2 poll. lata, subundulata, tenui-coriacea, costa apicem versus subevanescente, venis in sicco tenuibus sed prominentibus; flores albi v. in colorem purpurascentem vergentes, tubo viridiusculo, poll. longi, pedicello gracili basin versus articulo suffulti 2—3-ni fasciculati, secundi et paniculam parce divaricato-ramosam terminalem amplam glabram efficientes; bractæ lineari-lanceolatæ, eæ ramificationum inferiorum usque ad pollicem longæ, deciduæ; bracteolæ ovato-lanceolatæ, minutæ; perianthium basi inflatum et fere usque ad basin 6-partitum, lobis linearibus obtusis tubuloso-convergentibus apice tantum patentibus; filamepta alba; baccæ 1—3 lobæ, lobis subsphæricis pisi magnitudinis aurantiacis nitidis 1-spermis.—*Pegu, Martaban, Tenasserim.*—*D. ternifoliæ* affinis.



292. *DRACENA PACHYPHYLLA*, nov. sp.

Fruticulus erectus v. ascendens, simplex v. vix ramosus, glaber, 1—2-pedalis, caulibus digiti minoris crassitudine v. tenuioribus; folia elliptica ad elliptico-lanceolata, acuta v. subulato-acuminata, coriacea, sæpius maculata, 4—6 poll. longa et  $1\frac{1}{2}$ — $2\frac{1}{4}$  poll. lata, costa apicem versus evanescente, venis tenuibus et prominentibus, superiora basi sensim complicato-attenuata semi-amplexicaulia, inferiora in petiolum usque ad poll. longum foliaceum basi vaginanter ampliatus abruptius contracta; flores albi, pedicello brevissimo robustiusculo articulado suffulti, racemum terminalem 1—2 pollicarem spiciformem pedunculatum glabrum efficientes; perianthium c.  $\frac{3}{4}$  poll. longum rectum, basi parum inflatum, fere usque ad basin 6-fidum, lobis erectis et tubiformi-conniventibus apice tantum erecto-patentibus; baccæ 3—1-lobæ, lobis globosis pisi magnitudine rubris nitentibus monospermis.—*Andamans.* (etiam *Malacca*, Maingay No. 1684): A *D. spicata*, specie arborea, quæ cum cl. Baker conjunxit, statura humili et perianthio recto non torto jam differt. *D. Finlaysoni*, Baker, eadem est ac *D. linearifolia*, Miq.

293. *DRACENA BRACHYPHYLLA*, nov. sp.

Fruticulus gracilis, parce ramosus, glaber caulibus 2—4 lin. crassis, folia linearia, sessilia basi breve petioliformi-attenuata et lato-amplexicaulia;  $\frac{1}{2}$ —1-pedalia, acuminata, tenui-chartacea, costâ apicem versus evanescente venisque tenuissimis et prominentibus; flores  $\frac{1}{2}$ — $\frac{2}{3}$  poll. longi, albi, pedicello supra medio articulado 2—3 lin. longo suffulti, bini v. solitarii, in racemos breves strictiusculos dispositi et paniculam terminalem sessilem brevem erectam glabram formantes; bracteæ lineari-lanceolatæ, subulato-acuminatæ, inferiores usque ad  $\frac{1}{2}$  poll. longæ; bracteolæ ovatæ, acutæ, membranaceæ, scarioso-marginatæ, c. lin. longæ; perianthium fere ad basin 6-fidæ, lobis tubuloso-conniventibus et apice erecto-patentibus; filamenta alba; baccæ.—*Andamans.*—*D. angustifoliæ* affinis.

*GRAMINEÆ.*294. *ARUNDINARIA ELEGANS*, nov. sp.

Fruticosa, 6—15-pedalis, culmis digit-crassis; folia linearia, longe acuminata, brevissime petiolata, rigide chartacea, 4—5 poll. longa,  $\frac{1}{3}$ — $\frac{1}{2}$  poll. lata, subtus conspicue tessellata et, præsertim apicem versus, secus margines cartilagineas subspinuloso-scabra; foliorum vaginæ glabræ, ore truncato parce hirsuto; turionum vaginæ parce fulvo-hispidulæ, ore nudo attenuato minute auriculatæ; spiculæ pedicello gracili  $\frac{1}{2}$ —1 poll. longo suffultæ,  $1\frac{1}{2}$ — $\frac{1}{2}$  poll. longæ, 14—4-floræ, racemum terminalem paniculiformem angustum glabrum efficientes; glumæ 2, 3— $3\frac{1}{2}$  lin. longæ, superior paulo brevior; rachillæ c. 2 lin. longæ, sericeo-puberulæ, nodo barbata; valvula exterior c. 4 lin. longa, compresso-concava, lanceolata, cuspidato-acuminata, lævis; valvula interior paulum brevior compresso-navicularis, secus carinas apicem versus



2-fidum sulcatum parce pilosa; lodiculæ 2, ciliatæ; stigmata alba; antheræ purpureæ; caryopsis deest.—*Ava, Martaban.*—*A. racemosæ* nimis affinis.

295. *BAMBUSA (DENDROCALAMUS) LONGISPATHA*, nov. sp.

Cæspitosa, arborea, 40—60-pedalis, culmis brachium crassis, turionum vaginæ longissimæ, sursum culmum haud amplectentes,  $1\frac{1}{2}$ — $1\frac{3}{4}$  ped. longæ appresse brunneo setosæ, altero latere oris angustati auriculo brevi rotundato nudo membranaceo auctæ; lamina imperfecta membranacea, reflexa; ligula conspicua sed angusta, longe et grosse brunneo-setoso-fimbriata; folia lanceolata ad lineari-lanceolata, 6—8 poll. longa et  $\frac{3}{4}$ —1 poll. lata, longe acuminata, brevissime petiolata v. subsessilia, supra præsertim secus margines scabriuscula glabrescentia; subtus glaucescentia; vaginæ glabræ, ore nudo paulum productæ, ligula conspicua, fimbriata; spiculæ minutæ, truncatæ,  $2\frac{1}{2}$ —3 lin. longæ, basi attenuatæ, compactiuscule et divaricato-5-floræ, dense glomeratæ, in spicis interruptas dein in paniculam amplam transformatas collectæ; valvulæ 2 inferiores vacuæ v. gemmiparæ, superiores 3 fertiles; valvula exterior fl. herm. obovato-orbicularis, acuta, 3 lin. fere longa, nitida, valvula interior subæquilonga, anguste navicularis, secus carinas dorsi concavo-depressi parce pilosa; antheræ luteæ, mucronatæ; stylus longus, persistens, breviter 2-fidus, stigmata purpurea; ovarium et stylus hirsuti.—*Arracan, Pegu, Martaban.*—Caryopsis *Dendrocalami* non est baccata nec perigynio circumdata, sed epicarpium plane coriaceum v. suberustaceum nec membranaceum uti in *Bambusa* sensu stricto.

296. *BAMBUSA (DENDROCALAMUS) CALOSTACHYA*, nov. sp.

Arborea, cæspitosa; vaginæ ramorum novellorum appresse fusco-setosæ, ore truncatæ, marginibus albo-ciliatis; ligula integra v. subintegra, angusta; folia larga, lato-lanceolata,  $\frac{1}{2}$ —1 ped. longa, 2—1 poll. lata, basi rotundata, breviter (vix lin. long.)-petiolata, acuminatissima, marginibus et supra apicem versus scabra, subtus molliter puberula; vaginæ glabræ? conspicue albo-ciliatæ, ore non productæ; ligula conspicua, integra erosa v. fimbriata; spiculæ lato-oblongæ, compressiusculæ,  $\frac{1}{2}$  poll. longæ v. paulo longiores, 7—8-floræ, glomeratæ, spicas interruptas dein in paniculam amplam transformatas efficientes ramulis plus minus puberulis; valvulæ 2 infimæ abbreviatæ, vacuæ, sequentes omnes fertiles; valvula exterior fl. herm. lato-ovata, c. 4—5 lin. longa, acuta, lævis; valvula interior naviculari-oblonga, acuta (ea florum inferiorum etiam obtusa), basi subattenuata, exteriore brevior, dorso puberula v. raro subglabra, secus margines et carinas albo-ciliata; antheræ luteæ, longiuscule et lævi-mucronatæ; filamenta libera; ovarium cum stylo longo hirsutum; stigma simplex, purpureum? lodiculæ 1 v. 2, lanato-fimbriatæ, minutæ.—*Ava.*—*B. latifloræ (Dendrocalamus—Munro)* valde affinis.

297. *BAMBUSA (DENDROCALAMUS) CRITICA*, nov. sp.

Arborea, cæspitosa, 15—30-pedalis, culmis 1—3 poll. crassis, junioribus



appresse-albido puberulis, turionum vaginæ magnæ, appresse argente-setulosæ, ore subtruncatæ; lamina imperfecta extus appresse sericeo-setulosa, basi in auriculas falcato-oblongas setoso-fimbriatas decurrens; folia lineari-lanceolata, basi truncata sæpius subobliqua, breviter (1 lin.) petiolata (superiora subsessilia), 4—8 poll. longa,  $\frac{1}{2}$ —1 poll. lata, acuminata, subtus scabræ hirtula, marginibus scabra, nervis utrinque 5—7; vaginæ glabræ? (verosimiliter juniores hirsutæ), ore haud productæ et auricula incrassata longe (pilis 2—4 lin. longis) fimbriata terminatæ; spiculæ, etc. ignotæ.—*Pagu.*—ex affinitate *B. strictæ*.

298. GIGANTOCHLOA (OXYTENANTHERA) MACROSTACHYA, nov. sp.

Arborea, 30—50-pedalis, cæspitosa, culmis brach. crassis; turionum vaginæ brevissimæ, 5—8 poll. longæ, dense appresse nigrescenti-setosæ; lamina imperfecta in auriculas magnas undulatas rotundato-terminatas fusco-fimbriatas decurrens; lingula angustissima, integra v. obsolete dentata; folia lanceolata, basi obtusa v. subrotundata, breviter (1 lin.) petiolata, 5—7 poll. longa,  $\frac{1}{2}$ — $\frac{3}{4}$  poll. lata v. latiora, acuminatissima, marginibus retrorse scabra, subtus albida et molliter puberula; vaginæ patenti-hirsutæ, glabrescentes, uno latere oris paulum producti minute auriculatæ et parce sed longe (2—3 lin.) fimbriatæ; lingula inconspicua; spiculæ sessiles (raro una alterave pedunculata),  $1\frac{1}{2}$ —2 poll. longæ, lineares, compressiusculæ, 6—7-floræ, strictæ v. raro curvulæ, subulato-acuminatæ, laxè glomeratæ, interrupte spicatæ et sensim paniculam amplam radicalem efficientes; valvulæ exteriores omnes rigide nigrescenti-fimbriatæ, inferiores 3 v. 4 abbreviatæ et vacuæ, superiores 3 hermaphroditæ; valvula exterior fl. herm. lineari-lanceolata, convoluta, subulato-acuminata; valvula interior anguste navicularis, præsertim sursum secus angulos dorsi deplanati atropurpureo-ciliata, apice vix bifida; antheræ purpureæ, aristato-acuminatæ; ovarium cum stylo simplici longo hirsutum; stigma album.—*Martaban, Tenasserim.*—Genus *Oxytenanthera*, Munro (excepta *O. Thwaitesii*) nulla nota differt a *Gigantochloa* nisi caryopside elongata; valvula interior in omnibus speciebus a me examinatis deplanata et bicarinata evadit. *Gigantochloa* genus valde artificiale et filamentis connatis vix ac ne vix a *Bambusa* differt. Habitus et spicularum structura in generibus *Bambusa* et *Gigantochloa* simili modo variat et species ex habitu arctissime affines, e. g. *B. polymorpha* et *Gigantochloa aspera* spiculis omnino inter se differunt.

299. MELOCANNA HUMILIS, nov. sp.

Fruticosa, cæspitosa, 8—15-20 pedalis, culmis  $\frac{1}{4}$ —1 poll. crassis; turionum vaginæ glabræ? brevissimæ, ore sinuato valde producto rotundatæ et ampliatæ; lamina imperfecta linearis, erecta, basi in marginem polito-viridem angustum decurrens; lingula angustissima, integra; folia lanceolata ad lineari-lanceolata, basi obtusa, petiolo 2—3 lin. longo suffulta, subulato-acuminata, 4—6 poll. longa  $\frac{1}{2}$ —1 poll. lata, secus marginem alterum scaberrima



subtus glaucescentia et scabrido-puberula; vaginæ glabræ, ore minute auriculato longe fimbriatæ; spiculæ, etc. ignota.—*Pegu, Arracan. Melocanna* a *Schizostachyo* differt caryopsidis epicarpio crasse carnosæ et perigynii absentia.

300. *CEPHALOSTACHYUM FLAVESCENS*, nov. sp.

Fruticosa, cæspitosa, 10—15-pedalis, culmis poll. circiter crassis; turionum vaginæ fragiles, appresse albo-setulosæ, lamina imperfecta erecta v. suberecta, inflato-cordata, convoluto-acuminata, basi in appendices latas undulatas fimbriatas falcatas decurrens, quarum una deflexa altera sursum vergens; lingula c. 2 lin. lata, erosodentata; folia parva, linearia, 3—5 poll. longa,  $\frac{1}{3}$ — $\frac{1}{2}$  poll. lata, acuminata, basi rotundata, brevissime petiolata marginibus præsertim apicem versus scabra, cæterum glabra; vaginæ glabræ, ore vix producto minute et incrassato-auriculatæ et pauci-fimbriatæ; spiculæ cylindrico-lineares, acuminatæ, c.  $\frac{1}{2}$  poll. longæ, albo-pilosæ, 3-floræ, dense glomeratæ et interrupte spicatæ, dein sensim in paniculam radicalem amplam collectæ; valvula infima vacua, sequentes hermaphroditæ cum terminali hebetata; valvula interior et exterior fl. herm. subconformis, albo-pilosa, subulato-acuminata, illa dorso subdeplanato apicem pilosum versus bicarinata; lodiculæ 3, lanceolatæ, acuminatæ, ciliolatæ; antheræ primum viridiusculæ et purpurascenti-punctatæ, dein pallide flavæ, acutæ v. obtusæ; perigynium elongato-lageniforme, cum rostro triquetro parce pilosum; stigmata 3, breviter, albo-pilosa; pericarpium.....—*Pegu*, in H. B. C. culta.—*C. pergracili* affine.—Genus *Teinostachyum* a *Cephalostachyo* more *Arthrostylidii* rachillis elongatis tantum differt et, in opinione mea, rejiciendum est. *Schizostachyum Blumei* Munro, non N. E. species est nova Hindostanica, *Sch. Hindostanicum* nominanda.

301. *PSEUDOSTACHYUM COMPACTIFLORUM*, nov. sp.

Arborea, cæspitosa, semiscandens, culmis 1—1 $\frac{1}{2}$  poll. crassis; turionum vaginæ lævissimæ, lamina imperfecta in auriculam angustam reflexam lunato-productam patenter fimbriatam decurrens, lingula integra, angustissima; folia larga, oblongo-lanceolata ad lanceolata, basi oblique truncata v. obtusa, breviter (1—2 lin.) petiolata, 6—10 poll. longa, 1—2 poll. lata, subulato-acuminata, glabræ, uno latere apicem versus scabra; vaginæ appresse sericeo-setosæ, mox glabrescentes, ore truncato in auriculam lunatam reflexam longe (3 lin.) fimbriatam productæ, ligula integra, angusta; spiculæ minimæ, 2—2 $\frac{1}{2}$  lin. tantum longæ, iis *Bambusæ longispathæ* consimiles, latæ et sub anthesi quasi truncato-2-fidæ, 5-floræ, dense glomeratæ et interrupte spicatæ, dein sensim in paniculam amplam radicalem collectæ; valvulæ inferiores 2 vacuæ, sequentes 2 hermaphroditæ, cum flosculo terminali longe pedicellato obovato; valvula exterior fl. herm. lato-ovalis, ventricosa, brevissime mucronata, nitens, c. 2 lin. longa; valvula interior æquilonga, lato-navicularis, apice 2-denticulatæ, secus angulos dorsi depressi albo-ciliata;



lodiculæ 3, maximæ, ovales, obtusæ, longe fimbriatæ; antheræ virescenti-luteæ, perigynium cum rostro brevi truncato glabrum; stigmata brevissima, albo-plumosa; pericarpium maturum pomi feri magnitudinis, irregulari-globosum, nitens, rigide coriaceum; semen maximum, carnosum, mox germinans.—*Martaban.*

302. *PSEUDOSTACHYUM HELFERI*, nov. sp. (*Bambusa Helferi*, Munro, ?)

Subscandens, cæspitosa, arborescens, culmis poll. circiter crassis; turionum vaginæ fugacissime albido-setulosæ, lamina imperfecta patens, basi attenuata in auriculam parvam longe fimbriatam producta, lingula angustissima setis albis 2—1 lin. longis fimbriata; folia larga, oblongo-lanceolata, basi vulgo inæqualia, breviter (1—2 lin.) petiolata, acuminata,  $\frac{1}{2}$ —1 ped. longa 2—2½-3 poll. lata, juniora secus margines scabra, mox glabra, subtus glaucescentia; vaginæ apparenter glabræ, ore parum producto et uno latere minute fimbriato-auriculatæ; lingula fimbriata, fragilitate pilorum mox integra v. indistincte denticulata; spiculæ, etc. ignota.—*Pegu, Martaban.*

303. *DINOCHLOA ANDAMANICA*, nov. sp.

Alte scandens, culmis poll. circiter crassis; turionum vaginæ sparse albido-setulosæ, ore nudo rotundata et vulgo undulata; lamina imperfecta erecto-patens, supra hispidula, lingula minute denticulata, sinum oris marginans; folia larga, oblongo-lanceolata ad lanceolata, basi rotundata, brevissime petiolata, setaceo-acuminata, 6—12 poll. longa, 1—2 poll. lata, utrinque lævia; vaginæ glabræ, ore parum producto subrotundatæ, lingula angusta, albida, os totum marginans et integra; spiculæ minutæ,  $\frac{1}{2}$ —1 lin. longæ, ovatæ, nitidæ, stramineæ, glabræ, sessiles, glomeratæ, interrupte spicatæ et in paniculam racemiformem angustam terminalem collectæ; valvula inferior saccato-cymbiformis, abbreviata, retuso-mucronata, vacua; valvula exterior fl. herm. lato-convoluta-ovata, acuta, lævis, lin. fere longa; valvula interior conformis; antheræ spurie-4-loculares, acuminatæ; ovarium etc., ignota... *Andamans (etiam in insulis Nicobaricis).*—*D. Tjangkorreh* affinis, sed spiculis multo minoribus pallidis (nec brunneis) foliis multo majoribus et ligula vaginarum differt. Specimina ex insulis Phillipinis, valvula interiore ciliata gaudentia et a cl. Munro cum *D. Tjangkorreh* conjuncta mihi est species nova et etsi eam non vidi *D. ciliatam* nomino.

304. *DINOCHLOA MACLELLANDII*, (*Bambusa Maclellandii*, Munro in Linn. Trans. XXVI. 114).

Alte scandens, culmis pollicem crassis; turionum vaginæ fugaciter appresse argenteo-setulosæ ore incrassato polito-marginatæ; ligula brevis, integra; folia magna, oblongo- ad ovato-lanceolata, basi rotundata, breviter (1—2 lin.) petiolata, subulato-acuminata,  $\frac{1}{2}$ —1½ ped. longa, 1½—3½ poll. lata, lævia, uno latere apicem versus retrorse scabra; vaginæ juniores appresse argenteo-setulosæ, mox glabrescentes, ore parum productæ et auricu-



la appressa rotundata nitente nuda terminatæ, lingula os totum occupans, integra; spiculæ, etc. ignota.—*Pegu, Martaban.*

### CORRIGENDA ET ADDENDA.

*Pueraria brachycarpa*, supra p. 232, dele observationem “*Spatholobus crassifolius* Bth. Diocleæ est species,” et adde:

243b. *PUERARIA STRICTA*, nov. sp.

Herba perennis erecta 2—4-pedalis, ramis subteretibus novellis canescenti-tomentosis; folia pinnatim 3-foliolata, petiolo  $1\frac{1}{2}$ —2 pollicari pubescente suffulta; foliola ovata, lateralia inæqualia, 2—3 poll. longa, acuta v. breviter acuminata chartacea utrinque sparse appresse hirsutula; flores desunt; racemi canescenti-tomentosi simplices axillares et in paniculas terminales collecti; bracteæ parvæ, subulatæ, persistentes; pedicelli sub fructu c. 2 lin. longi, calyx c. lin. longus puberulus; legumina lineari-oblonga,  $1-1\frac{1}{2}$  poll. longa,  $2\frac{1}{2}$  lin. lata, plana, glabra, pallida, 7—9-sperma; semina compresso-orbicularia, nigra, c. 2 lin. lata.—*Pegu, Martaban.*

243c. *PUERARIA HIRSUTA*, nov. sp.

Herba perennis volubilis v. prostrata ramis obtuse angulatis et retrorse appresse hirsutis; folia pinnatim 3-foliolata, petiolo patenter hirsuto 2— $2\frac{1}{2}$  pollicari suffulta; foliola ovata ad ovato-lanceolata, lateralia obliqua, acuminata, chartacea,  $2\frac{1}{2}$ — $3\frac{1}{2}$  poll. longa, utrinque (præsertim subtus) sparse appresse hirsuta; flores desunt; racemi vulgo bini v. terni dense fulvo-hirsutuli, axillares; bracteæ deciduæ; pedicelli sub fructu c. lin. longi; calyx parvus; legumina oblongo-v. lineari-lanceolata,  $\frac{1}{2}$ —1 poll. longa, 3— $3\frac{1}{2}$  lin. lata, plana et subtorosa, sparse sed longe et patenter hirsuta, 2—4-sperma; semina transverse ovoidea, compressa, pallida v. pallide brunnea, nitida, c.  $2\frac{1}{2}$  lin. lata.—*Pegu.*

### Explanatio tabularum.

T. XVIII. *Gonocitrus angulatus*, Kz. Fig. 1. ramus fructiferus; f. 2. fructus; f. 3. id. longitudinaliter sectus; f. 4. id. horizontaliter sectus; f. 5. semen, magnitudine paullo auctum; f. 6. semen longitudinaliter sectum.

T. XIX. *Balanostreblus ilicifolius*, Kz. Fig. 1. ramus florens plantæ femineæ; f. 2. ramus fructicans; f. 3. racemus florum femineorum; f. 4. flos femineus perianthio remoto ovarium exhibens; f. 5. flos femineus longitudinaliter dissectus; f. 6 fructus maturi sectio verticalis. Fig. 3—6 omnes magnitudine auctæ.



NOTES ON THE CERTHINÆ OF INDIA,<sup>6</sup>—by W. E. BROOKS, Esq., C. E.,  
Dinapore.

(Received September 8th, read November 5th, 1873.)

With a good series of about thirty to work with, it appears to me that we have decidedly five species in India.

I.—CERTHIA HIMALAYANA, Vigors.

A well-known species which need not be described here, and which is distinguished from the others by its well-barred tail, the other species having the tail only occasionally obscurely rayed.

II.—CERTHIA HODGSONI, Brooks.

The differences between this bird and the European *C. familiaris* have been already pointed out.\*

I regard the four outer plain or unspotted primaries of *C. Hodgsoni* versus the three plain ones of the English bird, as conclusive evidence of the distinctness of the two species. The much longer and straighter bill, with the white lower mandible; and the greyer and less rufous tone of plumage, with much whiter spotting on the back and head, should also be taken into account. The legs and feet of the English bird are also, as a rule, darker. The voices of the two birds differ; that of the English one being much louder and somewhat different in tone. The Indian species is much more silent. I have before noted the conspicuous difference in the eggs.

This species is the *C. familiaris* of some Indian ornithologists.

III.—CERTHIA NIPALENSIS, Hodgson.

*Certhia discolor*, Blyth.

Any one who has examined Mr. Hodgson's drawing of *C. Nipalensis*, must have seen at a glance that it represents the earthy brown breasted bird; and I have therefore no hesitation in uniting both species under Hodgson's term.

The supposition that the brown-breasted bird could be identical with either of the two species next to be described, is a great mistake, as a good series at once shews. As far as my own observation goes, the sexes of the *Certhiinae* are alike in plumage. Even the young and old are very similar. The earth-brown tint of *C. Nipalensis* commences from the base of the lower mandible; and the chin and throat, which are generally protected from getting soiled in most birds, are in this species as dark as any part of the breast. The idea that the brown lower surface is merely produced by the feathers being soiled, is against the rule with regard to Creepers, which preserve the purity of their plumage in a remarkable manner, even near large manufacturing towns. The colour on the breast of *C. Nipalensis* is, as Mr. Blyth observed, a fast colour.

\* Journ. A. S. Soc. Beng. Vol. XLI, Part II, p. 73.



The tail of this species is more rufous than that of any of the others. In other respects the colouration of the upper parts is similar to that of the two species next to be described. *C. Nipalensis* has a large and rather strong bill compared with those of the others.

Hab. Nepal and Sikkim.

IV.—*CERTHIA STOLICZKÆ*, n. sp.

This species, as far as the upper surface is concerned, resembles *C. Nipalensis*, but the bill is much shorter and weaker. The chin and throat are fulvous, and breast warm buff, increasing in rufous tone to the flanks and lower tail coverts, which are bright rusty brown. The rump and upper tail coverts, as in *C. Nipalensis*, are bright rusty brown, even brighter perhaps than in that species; but the colour of the tail feathers is less rufous, particularly so as regards the shafts of the feathers. The long claws, especially those of the anterior toes, and the large foot, are noticeable in this new species; in fact, it could almost be separated by the foot alone. Sometimes its throat alone is nearly white, but from this point the fulvous tone covers the lower surface.

I have much pleasure in naming it after my friend Dr. Stoliczka, to whom Indian naturalists are so much indebted.

Hab. Sikkim.

V.—*CERTHIA MANDELLII*, n. sp.\*

A bird of similar dimensions to the last, but with a longer and more curved bill, and smaller feet and claws.

The throat and breast are bright silky white; abdomen and sides tinged with brown, and flanks slightly washed with rusty: lower tail coverts pale rusty brown; upper tail coverts, as in the last, bright rusty brown; tail plain brown with the shafts rather rufous. In the colour of the tail being less rufous, this bird differs much from the last. Its principal characteristics are, however, the pure white breast, instead of the buff one of the last species, while the upper surface of the bird is very similar.

One of the eight specimens differs notably from all the others, by having a warm rosy tinge suffusing the white of the breast and throat. I do not, however, think this sufficient ground upon which to make a new species, and will not, therefore, name it provisionally; but will leave this to any one who will take the trouble to investigate the creepers further than I have done. The present species is named after Mr. Mandelli who sent me the two new species I have just described, and who placed all the creepers in his collection at my service.

Hab. Sikkim.

In examining examples of this genus, care is necessary to keep the long loose feathers in their proper places. The rufous feathers of the rump often

\* This species is probably the "*Certhia Nipalensis*" of Jerdon's Birds of India; as the "lower parts" of the last are not pure white."



get twisted out of place, so as to shew more or less on the under surface of the bird. So also with regard to the correct colour of the flanks. I conclude with a table of dimensions.

	Wing.	Tail.	Bill.	
<i>C. Nipalensis</i> ,	2.7	3.1	.55	
"	2.64	3.15	.57	
"	2.7	3.15	.54	
"	2.76	3.2	.55	
"	2.65	3.12	.5	
<i>C. Stoliczkæ</i> ,	2.75	3.25	.47	
"	2.9	3.3	.45	
"	2.78	3.16	.45	
"	2.67	3.12	.42	
"	2.86	3.22	.43	
"	2.78	2.84	.45	
"	2.57	2.52	.43	
<i>C. Hodgsoni</i> ,	2.54	2.5	.68	
"	2.5	2.3	.67	
<i>C. familiaris</i> ,	2.33	2.2	.43	
"	2.45	2.15	.53	
"	2.4	2.15	.42	
<i>C. Mandellii</i> ,	2.5	2.7	.44	
"	2.73	2.83	.56	
"	2.7	2.3	.52	
"	2.7	2.67	.53	
"	2.6	2.6	.56	The rosy-breasted example.
"	2.5	2.47	.45	
"	2.65	2.35	.55	
"	2.32	1.82	.25	A young bird but fully feathered.

Mr. Mandelli says "to my recollection the dirty and brown-throated and breasted creepers (*C. Nipalensis*) are always found at low elevations. The white-breasted ones (*C. Mandellii*), always at high elevations. I know nothing about the yellow-breasted ones." (*C. Stoliczkæ*).

The latter were procured by Mr. Mandelli's shikaree but at what elevation I have not ascertained.



ON A NEW GENUS AND SPECIES (*Hylæocarcinus Humei*) OF LANDCRABS  
FROM THE NICOBAR ISLANDS,—by JAS. WOOD-MASON, of *Queen's  
College, Oxford.*

(With Plates XV & XVI.)

(Received and read August 6th, 1873.)

Milne-Edwards, in his classical work on the entire class of crustacea published in 1837, divides\* the four then recognized genera of the small but remarkable group of *Gecarcinidæ*, or Landcrabs properly so-called, into two divisions accordingly as they have the terminal joints of the external maxillipeds completely exposed, or inserted on the internal face of the third joint near its summit and completely hidden beneath it; and Dana† in his great work not only adopts these divisions but gives them subfamilial names:—"The *Gecarcinidæ*," he says, "pertain naturally to two groups or subfamilies; one having the termination of the outer maxillipeds *exposed* as usual, the other having this part concealed beneath the second and third segments. The subfamilies and genera are as follows:—

SUBFAM. 1. UCAINÆ. Articul. maxillipedis externi 4tus apertus.

1. *Maxillipedes externi non hiantes.*

G. 1. UCA, *Leach*. Articul. maxillipedis externi 4tus angulo externo insitus.

G. 2. GECARCINUCUS, *Edwards*. Articul. maxillipedis externi 4tus marginis medio apicalis 3tii insitus.

2. *Maxillipedes externi late hiantes.*

G. 3. CARDISOMA, *Latr*. Articul. maxillipedis externi 4tus apice 3tii externo insitus.

G. 4. GECARCOIDEA, *Edwards*. Articul. maxillipedis externi 4tus marginis medio excavato apicalis 3tii insitus.

SUBFAM. 2. GECARCININÆ. Articul. maxillipedis externi 4tus et sequentes 3tio celati.

G. 1. GECARCINUS, *Latr*.

This division is unnatural as separating the genus *Gecarcoidea* (hodie *Pelocarcinus*) from *Gecarcinus* to which it is most closely related, and ranging it with others with which its relations are more general; and the classificatory value of the character upon which it is based is, moreover, much diminished, if not altogether destroyed, by the discovery of a new form presenting an interesting transition from the former to the latter genus in this very character. A more natural result can, however, be attained, and

\* Hist. nat. des Crust., Vol. II, p. 20.

† Unit. States Expl. Exped., Crust., Vol. I, pp. 374-375.



Dana's family names still retained, by the substitution of another maxillipedary character for the one originally selected and now proposed to be rejected: *Gecarcinus*, *Pelocarcinus*, and *Hylæocarcinus*, in fact, agree with one another and differ from all other genera of the family in that the exopodites of their outer foot-jaws are short, without flagella, and completely concealed from view beneath the second joints. The several genera of *Gecarcinidae* divided into two groups or subfamilies accordingly as they have the exopodites of their outer foot-jaws provided with a flagellum and applied to the external margin of the second and third joints so as to be externally visible; or have them short and rudimentary without flagella, and concealed beneath the second joint; will then be distributed as follows:

SUBFAM. I. UCAINÆ.

Genus 1. *UCA*, Leach.

„ 2. *GEARCINUCUS*, M.-Edw.

„ 3. *CARDISOMA*, Latr.

SUBFAM. II. GECARCININÆ.

Genus 1. *GEARCINUS*, Latr.

„ 2. *PELOCARCINUS*, M.-Edw.

„ 3. *HYLÆOCARCINUS*, Wood-Mas.

A careful study of all the numerous figures and descriptions of species of *GECARCINIDÆ*, and, in the cases of the genera *Cardisoma* and *Gecarcinucus*, of actual specimens has convinced me that the *GEARCININÆ* further agree with one another in the structure of the *epistoma* which in them is of great length from before backwards and nearly horizontal, thus differing remarkably from the *UCAINÆ* in which it is short and nearly vertical; this part has in *Pelocarcinus* been described by Milne-Edwards\* as “grand, complètement à découvert et confondu en arrière avec le palais,” and it appeared to me to pass insensibly into the *endostoma* or ‘palate’ in *Hylæocarcinus* also until I had removed the thick clothing of coarse hairs that obscured the parts when I found no difficulty in distinguishing them. It is also a notable fact that the three most closely-allied species of the former, viz., *Gecarcinus ruricola*, *Pelocarcinus Lalandei*, and *Hylæocarcinus Humei*, have six rows of strong spines to the terminal joints of the walking legs, and I would also draw attention to the shallow yellow scars situated in all three on each side of the eye and on other parts of the carapace—tell-tale marks of their descent from a common ancestor!

*HYLÆOCARCINUS*,† n. gen., Wood-Mason.

Proc. As. Soc. Bengal, August 1873, p. 161.

\* Arch. du Mus., 1855, Vol. 31, Pl. xv, fig. 2a.

† ἑλαῖος, sylvester, et καρκίνος, cancer.



Front not united to the internal suborbital lobes as it is in the genera *Gecarcinus* and *Pelocarcinus*, but separated from them by spaces at least as wide as the deep bold fissures that divide to their bases the internal from the external suborbital lobes; into these interspaces project the flagella of the antennæ, the basal joints of which appendages lie tightly wedged between the internal margins of the internal suborbital lobes and the epistoma. The third joint of the external maxillipeds with an obtuse-angled emargination in its anterior border; the external margins only of the first of the three terminal joints is barely visible externally when the appendages are properly closed, its external surface being flattened for movement upon the inner face of the preceding joint: in *Gecarcinus* these terminal joints are completely hidden from view, the angular process that projects like a pillar in demi-relief from the inner face of the third joint and supports them, ending abruptly so very far short of the anterior margin of the joint: in *Hylæocarcinus* the similar but stouter pillar-like projection that carries these joints at its summit extending much farther towards the extremity of the joint than it does in *Gecarcinus* but certainly failing to reach it, these joints can consequently be only partially visible: in *Pelocarcinus* they are completely visible, being articulated to the apex of the third joint.

#### HYLÆOCARCINUS HUMEI, n. sp.

The carapace is at once distinguished from that of *Pelocarcinus Lalandei*, M.-Edw. by its more arched outline in front, and by the two rounded tubercles on the mesogastric lobe which, as in *Gecarcinus ruricola*, is limited off antero-laterally from the rest of the gastric region by very shallow depressions passing off from the hinder end of the profoundly-deep median groove and joining the branchie-gastric groove on each side; the straight line representing its greatest breadth crosses it just in front of these tubercles; in front of this imaginary line its upper surface is very convex and much swollen everywhere, but behind it flat; it is just perceptibly angulated on each side for a short distance beyond the external margin of the orbits, these angulations corresponding to the lines of spiniform tubercles seen in the same position in *Gecarcinus ruricola*. The outer slopes of the branchial regions, both anteriorly and posteriorly, and the floors of the branchial chambers, all the inflected portions of the carapace in fact, covered with squamiform tuberculated lines which, fine and delicate above, become shorter and coarser as they approach the bases of the legs and the buccal frame. The anterior is divided by a shallow transverse impression slightly interrupted in the middle line from the posterior cardiac lobe, which, just as in the rest of the *Gecarcinidæ*, is much expanded posteriorly between the bases of the posterior pair of legs.

The interantennular septum is formed mainly by the subfrontal lobe,







Breadth of carapace of the female, .....	96 m m.
Length " " " " .....	73 m m.
∴ B: L :: 1.315, etc. : 1.	
Length of left claw of male, .....	88 m m.
• Ditto right ditto, .....	87 m m.
Height left ditto, .....	38 m m.
• Ditto right ditto, .....	38 m m.
Length of left claw of female, .....	55 m m.
• Ditto right ditto, .....	57 m m.
Height of left ditto, .....	21½ m m.
• Ditto right ditto, .....	25 m m.
Length of post-abdomen of female, .....	55 m m.
Breadth ditto ditto, .....	51 m m.

*Hab.* The dark dense damp forests of the Nicobar Islands. I captured a male and a female on Treis Island. Another specimen with a much distorted carapace was subsequently taken on Narkondam Island by Mr. Allan O. Hume, C. B., after whom I have named it.


#### *Explanation of the plates.*

Pl. XV. *Hylacarcinus Humei*, Wood-Mason, male, nat. size.

Pl. XVI. Fig. 1. Facial region of the same. Fig. 2. Front view. Fig. 3. Post-abdomen of the male. Fig. 4. External maxilliped of the left side viewed from the outside. Fig. 5. Internal view of the same. All the figures of the natural size.



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